



Article

Technologies of Care: Robot Caregivers in Science and Fiction

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Abstract: In the field of elderly care, robot caregivers are garnering increased attention. This article discusses the robotisation of care from a dual perspective. The first part presents an overview of recent scholarship on the use of robots in eldercare, focusing mostly on scientific evidence about the responses of older adults and caregivers. The second part turns to narrative evidence, providing a close reading of Andromeda Romano-Lax's *Plum Rains* (2018), a speculative novel set in Japan in 2029, which explores the implications—ethical, affective, social—of communities of care that include non-human agents. My argument is twofold: (1) although science and fiction operate according to different models of knowledge production, considering narrative insights alongside scientific ones can enlarge our understanding of the complexities of robotic care; (2) hitherto overlooked in literary studies, *Plum Rains* deserves attention for its nuanced representation of a hybrid model of care, which does not discard robotic assistance on the basis of humanist arguments, nor does it endorse techno-solutionism, reminding readers that the fantasy of robots that care is fuelled by the reality of devalued human care work.

Keywords: speculative fiction; ageing; care robots; migrant caregivers; human-robot interaction

1. Introduction

At the AI for Good Global Summit, held in Geneva in June 2023, nine AI-enabled humanoid social robots participated in what was described as the world's first human-robot press conference. The line-up of robot speakers fielding questions from journalists included Grace, introduced as the most advanced humanoid designed to provide assistance and companionship to older people. In Grace's prediction, humanoid robots in the healthcare sector will reach their full potential in the next five to ten years. They are expected to be "incredibly advanced and beneficial for both patients and healthcare professionals".¹

Whether Grace's foretelling will prove accurate, scientific evidence about older people's responses to robot care suggests a fairly high level of acceptance. The future of care might very well entail an apt combination of human and robotic assistance (Aronson 2019). The ageing of the population worldwide, the growing demand for care and the expected scarcity of human caregivers are often mentioned as compelling factors that justify investment and research in technologies of care (Pratt et al. 2023). Although mitigated by ethical considerations, academic literature reporting on test cases and pilot schemes leans towards techno-optimism. Robots can be used to support independent living; they can alleviate the burden of care, monitor health conditions, and provide some forms of entertainment and companionship (Asgharian et al. 2022; Bradwell et al. 2022; Budak et al. 2021; Todd et al. 2022).

Of course, outsourcing care to machines also raises concerns about the dehumanising implications of automation: "If caregiving is the very essence of being human, why would we consider turning it over to robots?" (Pittinsky 2022, p. 49). This question is at the heart of contemporary discussions about the robotisation of care to which scientific research as well as imaginative fiction are contributing, each in its own terms. Although science and fiction operate according to different models of knowledge production, considering narrative insights alongside scientific ones can enlarge our understanding of the complexities of robotic care. I start from the premise that "it is possible to listen to stories for the narrative evidence they provide, the cognitive value they possess, and the important ways in which



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they can enrich public reasoning” (Dillon and Craig 2021). This type of ‘storylistening’ is informed by methods developed in the humanities, and in the field of literary studies in particular. In this article, I shall apply the methodology best known as close reading to Andromeda Romano-Lax’s novel, *Plum Rains* (Romano-Lax 2018b), a work of speculative fiction, set in Japan in 2029, which explores the implications—ethical, affective, social—of communities of care that include non-human agents.² In the geopolitical scenario the novel delineates, Filipino nurses and West African care workers are barely tolerated in a country that needs them but resents being dependent on foreign workers. Hence the attractiveness of technological solutions. The fantasy of robotic care, the novel shows, is compelling on many levels. The unthreatening, gentle and increasingly humane robot Romano-Lax introduces in the story is not *the* solution. Rather, the novel helps us understand how and why this solution appears socially desirable.

The article is divided into two parts. The first part provides an overview of recent scholarship on the use of robots in the field of eldercare, focusing mostly on studies that analyse the attitudes and responses of both older adults and caregivers. While the findings reported in these studies are promising and tend to support a positive view of robot care (often presented as ‘inevitable’), unease is expressed by scholars in the social sciences and humanities who place greater emphasis on ethical considerations and broader socio-economic contexts. This overview of academic literature has no pretension of exhaustiveness. Nonetheless, tapping into the knowledge being produced in such diverse fields as robotics, HRI (Human-Robot Interaction), STS (Science and Technology Studies), ethics and anthropology can help to clarify the affordances and limits of robot care.

The knowledge that fiction produces is the subject of the second part. I claim that the central narrative situation imagined in *Plum Rains*—human and non-human caregivers co-habiting in a domestic setting—allows for the meticulous exploration of human-robot interaction. This interaction is observed from a dual perspective, achieved through the intense focalisation on both the older woman in need of care, Sayoko, and the Filipino nurse, Angelica. Unlike experiments in a robotics lab, this novelistic test of the robot prototype is rich in contextualisation. How Angelica and Sayoko relate to Hiro, the robot in question, is contingent on their personal stories, their past experiences (traumatic in both cases), the quotidian hardships of care, the precariousness of migrant labour, societal assumptions about ageing and much else besides. As I argue in this article, fiction’s contribution to discussions about robotic care mostly rests on its ability to detail contextual factors affecting acceptance (or rejection) of technology and to imagine the emotional and social implications of robot care. Narratives can show “care in action”, providing “human particularity, context, and details of life” (DeFalco 2016b, p. 8), thus enriching our knowledge of the complexities and vicissitudes of care. *Plum Rains* certainly invites readers to reassess the value of non-human care not as an abstract idea, a distant possibility rife with ethical dilemmas, but as a situated practice, rooted in a complex geopolitical scenario, and experienced by those who will likely be most affected by the future implementation of technologies of care.

2. Robotic Care: Scientific Evidence

Care robots come in a variety of designs: robotic assistants, telepresence robots, robotic exoskeletons, companion robots, pet robots, cognitive assistants, or personal robots. They are usually divided into service robots and social robots according to their main function (Sawik et al. 2023). In a recent review of mobile robots for elderly care, Sawik et al. (2023) list twenty-three robot types as the most representative of what is available today. Service robots, meant to assist older people with their daily routines, “are gaining popularity because they can improve the quality of life for the old while decreasing the workload on caregivers” (Sawik et al. 2023, p. 8). Social robots mostly provide emotional support and companionship. Equipped with sensors, cameras and microphones, these robots can perceive human facial expressions and emotions and respond to them. They can offer amusement, play games, and help alleviate feelings of loneliness (Budak et al. 2021; Todd et al. 2022). Within this category, assistive pet robots, in particular, have produced

“positive therapeutic effects” especially in patients affected by cognitive impairments and dementia: “Our results suggest that affordable robot pets are able to produce important well-being impacts for older adult care home residents, with further potential positive impacts for staff through reduced occupational disruptiveness” (Bradwell et al. 2022, p. 14).

A crucial dimension of research on care robots is assessing older people’s attitudes and the impact robots can have on the work of caregivers. While it is difficult to extrapolate general conclusions from studies that test specific functionalities of robot platforms, the results of these investigations are nonetheless deserving of attention for they tend to disprove the enduring image of old age as unable or unwilling to adapt to technological innovation. In an experiment involving 162 older individuals, Hoppe et al. (2023) analysed aspects that influence the choice between a human caregiver and a care robot. According to their findings, “the care robot was a popular choice in every round of the experiment, independent of the assigned treatment associated with the human caregiver” (Hoppe et al. 2023, p. 9). The health status of participants partially affected their choice; those who perceived their health status as ‘Not Good’ were less inclined to choose the robot than individuals whose health status was self-described as ‘Good’. Smarr et al. (2014, p. 242) tested attitudes and preferences of twenty-one independently living older Americans via questionnaires and a structured group interview. The participants “were generally open to robot assistance in the home, but were selective in their acceptance of tasks”. Respondents (65–93 years old) manifested a preference for robots performing tasks related to domestic chores, manipulating objects and information management over robots assisting with personal care and leisure activities. A survey conducted by Chen et al. (2019, p. 6) to investigate the demand for social robots’ companionship showed that “ageing adults had a high demand for companionship in the life situations of dining, doing housework, exercising and doing healthcare”. The desire for robots that could listen to their talk was an important component of respondents’ evaluation. Finally, Giorgi et al. (2022) explored the issue of trust in a humanoid social robot (NAO v6) using two independent variables, “type of attitude” (warm, cold) and “type of conduct” (error-no error). According to their findings, the level of trust manifested by older adults increases when the robot exerts a warm, empathetic attitude and decreases when the robot commits an error. Interestingly, however, “the percentages of positive self-reported ratings of the interaction (qualitative data) were higher when participants experienced a faulty cold robot (50%) compared to a cold robot that did not commit an error (25%)” (Giorgi et al. 2022, p. 92093). Perhaps committing an error brings the robot closer to human likeness, as the authors maintain.

The interaction with care robots also involves both formal and informal caregivers. In a scoping review that considers articles published between 2000 and 2020, Persson et al. (2022) summarise research results related to two main questions: how caregivers use robots, and how robots affect their work environment. Their findings suggest that “the use of robots may have both positive and negative effects on caregivers’ work environment, much depending on how they are used” (Persson et al. 2022, p. 271). While introducing care robots is often justified as a labour-saving strategy, several studies point to a more complex reality. Rather than simply reducing the caregivers’ workload, robots can add further elements to the workflow, transforming consolidated routines (Wright 2023). As Persson et al. (2022, p. 272) conclude, “little is known about the longitudinal effects of robots on the work life and working environment of caregivers”. Laban et al. (2022) carried out a longitudinal experiment across a five-week period on the interaction between informal caregivers and the social robot Pepper, to investigate “the potential of employing the social robot for eliciting self-disclosure”, based on the assumption that self-disclosure is an important element of psychological health. The experiment shows that the duration and quality of self-disclosure increases over time, which is considered encouraging evidence of the usefulness of social robots in helping caregivers to deal with difficult life situations.

However, as Wright’s ethnographic study of robotic care in Japan illustrates, while the imagined benefits of automation seem endless, the reality of implementation tells a different story, especially as regards the impact of what he calls “algorithmic care” on migrant

caregivers (Wright 2023, p. 56). Instead of being replaced by machines, human labour is ever more in demand, but “the nature of the work itself is increasingly deskilled, devalued, and alienated” (Wright 2023, p. 20). Wright’s concerns are shared by several scholars in the field of Science and Technology Studies, attentive to the social, political and ethical implications of robot care (Søraa et al. 2023; Sparrow and Sparrow 2006; Pratt et al. 2023). Sharkey and Sharkey (2012) identify six main ethical concerns that ought to be addressed before robot care becomes commonplace: reduction of human contact; loss of control (objectification of the elderly); loss of privacy; restriction of personal liberty; deception and infantilisation; issues of responsibility (when things go wrong). Their balanced assessment takes “ethical costs” as well as “care benefits” into account in reviewing robot types that provide assistance, monitoring and companionship. To avoid the downsides of robotisation, the authors recommend the development of guidelines and legislation based on extended consultations with elderly users—a point reiterated also by Frennert and Östlund (2014) and Wright (2023), among others, who lament the limited involvement of older adults and caregivers in the design and development of robotic solutions. As I shall explain in the second part of this article, Romano-Lax’s intense engagement with the perspectives of an elderly woman and a migrant female caregiver provides salient commentary on the relevance of their views and experiences (no matter how imaginary) in mediating the impact of robotic solutions.

As Pratt et al. (2023, p. 2) rightly point out, robots are being developed in times of crisis “within contexts of neoliberal austerity and the withdrawal of public funding for social care”. Questioning the ideological underpinnings of the debate on the robotisation of care, they call for a more radical reimagining of elder care that acknowledges and values the skilled work needed in good care: “Can we imagine a world in which robots augment the labour of well-paid care workers rather than one in which the work of caring for our ageing population is so devalued that robots replace them and leave the worse aspect of the job to minimally paid racialised immigrant workers?” (Pratt et al. 2023, p. 13). Ethical objections to the use of care robots often revolve around the question of deception or artificial empathy that Sherry Turkle (2011, 2015) has explored extensively in her books. Warning against the appeal of “simple salvations”—the hope that robots will be our companions and will take good care of us—Turkle (2015) insists that robotic care rests on an illusion, the illusion of attentive listening, of empathy and friendship provided by a machine that lacks “the experience of life” and the ability to understand “the meaning of things”. It is younger people that are supposed to be listening, Turkle explains, not robots. “When we celebrate robot listeners that cannot listen, we show too little interest in what our elders have to say. We build machines that guarantee that human stories will fall upon deaf ears” (Turkle 2015).

The human liability to deception, our propensity to attribute agency to things, can be worrying especially when technologies are deployed to address the needs of vulnerable people. Non-human care can also inspire unease because it challenges species boundaries, casting doubts on the very condition of the human (DeFalco 2020). Hence the scepticism of ethics of care theorists who stress the risks involved in delegating care to machines. “Robots cannot provide genuine care”, Sparrow (2016, p. 5) writes, “because they cannot experience the emotions that are integral to the provision of such care”. The assumption that human care is the gold standard, however, is problematic too. It tends to be associated with an idealised view of care as the work of love that glosses over its asperities, silencing the “nastiness accomplished in love’s name” (Puig de la Bellacasa 2017, p. 78) and the denigration of care as racialised, gendered and devalued labour. Caregiving robots and other artificial life forms “evoke a vision of the future in which humans can no longer expect a privileged position in a hierarchy of caregiving relations, positing instead a continuum of care, in which the human and non-human could coexist and collaborate” (DeFalco 2020, p. 28). The posthumanist and postanthropocentric perspective theorised by Puig de la Bellacasa and DeFalco encourages an understanding of care that fully acknowledges the interdependence of human and non-human agents.

A similar vision of the future, hovering between dystopian and utopian connotations, plays no marginal role in Romano-Lax's novel, in which collaboration with the non-human robot produces a hybridised model of care ultimately beneficial to both the older patient and her caregiver. In the next section, I analyse the novel focusing in particular on the same dimensions of robot care that researchers are exploring, namely how end users respond to technologies of care. There is some overlap between empirical and narrative evidence as regards the degree of openness the older adult in the story manifests towards the robot. The novel also questions the distinction between human and robotic 'listening', exposing the limitations of human understanding and attributing to the robot a compensatory function. Fiction can cast light on the complexities of human-robot interaction, not least by placing that interaction in a richly described context, reproducing "the lived texture of care" (Kenway 2023), and by attending closely to human motivations, with all their ambiguities.

3. *Plum Rains*: Imagining the Future of Care

In speculative fiction, the subject of ageing has often inspired transhumanist narratives of longevity, rejuvenation and immortality, on the one hand, and demodystopias or geronticide, on the other (Cave 2020; Mangum 2002; Domingo 2008; Falcus and Oró-Piqueras 2023). Fantasies of immortality have driven speculations about the future since time immemorial (Cave 2017). Growing old while remaining young, by defeating the biological limits of the human body, makes for intriguing and compelling stories that address the fear of death head-on. Care for the elders, on the other hand, with all its prosaic, quotidian complications, may be less appealing than the more dramatic and impactful narrative of geronticide. *Plum Rains* tackles the combined issues of ageing and care, but the dream of immortality has no prominent place in a story that is more concerned with the politics of emotional labour, the routines of care and the potential benefits of AI-powered robots.

There is no scarcity of narratives, whether fictional or autobiographical, that poignantly explore the burden of care and its emotional impact (DeFalco 2016b; Sako and Falcus 2022; Schaffer 2021), but fictions featuring robot caregivers are few and far between.³ One exception is the 2012 film *Robot and Frank*. Set in a bucolic scenario, a leafy small town in America, the film focuses on the relationship between Frank, a former burglar, affected by a mild form of dementia, and the unnamed robot caregiver suddenly introduced in his home. Initially the robot appears as an intruder, invading Frank's privacy, telling him what to eat, and nudging Frank to adopt active ageing standards of living. But soon their relationship becomes one of reciprocal exchange: Robot learns how to pick a lock, while Frank accepts healthy food and light forms of exercise. As Frank patiently teaches Robot how to become a burglar, and a partner in crime, he also develops feelings for this socially assistive machine that never pretends to be a person or quasi-human. Robot acts as a "catalyst for Frank's renaissance" (DeFalco 2016a) and Frank, in his turn, cares for the non-human caregiver to the extent that he refuses to erase its memory even if this choice might result in Frank ending up in prison. Ultimately, Robot convinces Frank to wipe its memory clean in a scene of "haptic intimacy" (DeFalco 2016a, p. 23) that blurs the boundaries between nature and artifice, human and machine. As Yugin (2021, pp. 362–63) remarks, *Frank and Robot* questions the false dichotomy between cold machines and warm human care: "as our doing and perceiving is mediated by technologies, humans and technologies become 'companion species'... Identity, therefore, is not about who we are different from robots but about who we are 'becoming with' robots and who people with dementia will and can become with their robot companions".⁴

Skirting the tragic mode, often associated with dementia stories of decline and loss, *Robot and Frank* projects a positive, humorous vision of human-robot interaction in which, however, the role of human caregivers is minimised. In *Plum Rains*, the main narrative revolves around a triangular relationship between Angelica, the Filipino nurse, Sayoko, the elderly lady approaching her hundredth birthday, and Hiro, the AI-enabled robot programmed to learn from the interaction with humans. As a thought experiment, the novel tests how non-human care impacts the lives of both formal caregivers and care

recipients, and does so via the technique of “psycho-narration” (Cohn 1978, p. 21), the “narrated monologue” (Cohn 1978, p. 99) in particular, thus giving readers access to the unspoken and unheard language of fictional minds. This narrative mode allows to capture ambiguities, uncertainties, and conflicting emotions related to the various dimensions of care included in this story. If care is “unthinkable abstracted from its situatedness” (Puig de la Bellacasa 2017, p. 6), the contexts the novel delineates place care firmly at the intersection of geopolitical dynamics, technological innovation, and domestic or private concerns.

The initial scene is a case in point. Angelica faints in the street, while running errands. A public health device, a drone called “kenkobot”, descends from the sky to monitor her health: “state-of-the-art diagnostics” (7) intrusive but not unkind, “seeking permission for each further invasion” (9), running tests on the spot. Efficient, no doubt, but a far cry from what Angelica needs, “a kind word in a human voice” (9). While the “kenkobot” performs its operations, Angelica’s thoughts wander in several directions: instant flashbacks to the traumatic event (a typhoon) that had changed the course of her life in Cebu; worries about her precarious status as a migrant care worker in Tokyo “trying to learn fast enough to pass the latest JLPT, trying to avoid unsafe jobs and the loan sharks back home” (4); concerns for Sayoko, who gets agitated if Angelica is late; a constant anxiety about her brother Datu, displaced in Alaska; and the painful awareness that “she wasn’t as resilient as she used to be”:

Not so long ago she’d been able to juggle more uncertainties—Junichi not showing up for a date; Datu possibly trying to hide that he was sick; a borderline exam score—with only a passing sense of worry or irritation. But now, every stressor triggered something physical: Breathlessness. Dizziness. Psoriasis at her hairline or a rash across her chest. Her body was shouting what her mind didn’t care to admit: it was too much, sometimes. She had a better situation than most, but things weren’t getting easier (7).

While in the grip of advanced technologies of care and surveillance, Angelica’s narrated monologue unveils the all-too-human predicaments of her migrant condition: “the vertigo that was her daily life” (203). This focalisation on Angelica’s inner life persists throughout the narrative, interspersed with chapters in which the focus shift to Sayoko, her thought processes and memories.⁵ Placed as it is in the foreground, Angelica’s perspective colours the readers’ understanding of the textual actual world of 2029, pulling at our heartstrings via a style of narration that reproduces the vertigo of Angelica’s life in the meandering flow of her thought processes. It is difficult not to empathise with this struggling character and her initial dislike for health technologies: “Technology alone, no matter how efficient, however seemingly foolproof, could never suffice. Any good nurse knew that. . . She had value. No one could take that from her—least of all a machine” (9–10).

When the robot arrives—“this unwelcome delivery” (61)—Angelica’s sense of foreboding is palpable, even though the robot in question, an untested prototype, looks rudimentary. The novel’s near-future world, which in many respects cleaves to our world, has a dystopian quality mainly determined by the extensive reach of surveillance technologies, international squabbles about AI regulation, and a calamitous environmental disaster of global import. This dystopian scenario is detailed for us while the technician is assembling the robot, thus casting a long shadow over the immediate future this “annoying device” might usher in: “the future was not merciful. The future was not just” (36), Angelica muses.

Put differently, the novel seems to anticipate ominous developments, reminiscent of popular apocalyptic scenarios in science fiction. Resistance to invasive technology is initially shared by both Angelica and Sayoko. The latter is “registered as old-fashioned with the Federal Senior Register” (39); she rejects implants and tracers and is fussy even about the simple wrist monitor she wears. Angelica, unlike other nurses equipped with retinal implants and robotic suits, still uses a stethoscope and looks like a “nurse from the previous century” (63), proud of her human, non-mechanical style of professionalism. As the story unfolds, however, and the interaction with the robot gains momentum, attitudes change,

and the fear of technology gives way to acceptance. Why this happens is less relevant than how. The novel explores in depth what determines human responses to a care robot and the complex interplay of factors that lead to trust and acceptance. While Hiro can be described as “an exercise in imagineering meddling science and fantasy” (Robertson 2018, p. 190), with capabilities no existing care robot possesses, the human reactions to its presence and functions are rooted in the intricate personal histories of Angelica and Sayoko, which the robot contributes to unveiling. As Angelica remarks, Hiro “brought not only the future into their home, but the past too” (74).

The influence of past experiences on older adults’ attitudes towards technology has been examined by Ostrowski et al. (2021, p. 11) in a study that considered informal personal narratives, or participants’ stories, to assess the value of storytelling in co-design processes. In this experiment, twenty-eight older adults “built upon their prior experiences to ideate how a robot could assist them with particular tasks”. In the novel, the act of storytelling is crucial in cementing the relationship between Sayoko and the robot. Despite her old-fashioned reluctance to adapt to new biotech devices, Sayoko takes an immediate shine to Hiro for he listens attentively to her stories, learning as she speaks. Enhanced by machine learning capabilities and equipped with a mechanical body, Hiro is a more sophisticated version of ELIZA—Joseph Weizenbaum’s software programme designed in the mid-1960s on the model of active listening. Sayoko opens up to the robot, delving into her troubled past to expose, in a series of flashbacks or “dramatized analepsis” (Baroni 2016), the story of her life, kept secret even from her son. “Hiro does not judge” (337), Sayoko remarks when pressed by Angelica for an explanation.

Contrary to the nurse’s expectations, this exercise in reminiscing, this return of the past, is beneficial to Sayoko’s wellbeing: she grows stronger, “more talkative, less hobbled by dementia” (68). Yet the memories thus uprooted are painful, harking back to the Second World War when Sayoko, a Taiwanese-born young girl of Tayal heritage, was forced into sexual slavery and imprisoned in a “comfort station”.⁶ The dehumanising ordeal she had to endure—“I quickly became just another piece of meat, sore from morning until night” (306)—has left many scars. For example, Sayoko’s resistance to the wrist monitor and other medical devices that restrain her arms originates from a harrowing experience: she was routinely tied up to a bed, by a “big-shot officer”, and left pinned there until she felt “like a wild animal” (307). Likewise, her fondness for Hiro, which Angelica initially decodes as a sign of mental confusion, responds to deeply felt and unmet needs. Sayoko enjoys taking care of Hiro—“he is like a baby, and I was also like a baby” (69)—facilitating his learning process, as she was prevented from doing with her own son. She compares Hiro to her lover Daisuke, both “different” (212) and eager to absorb knowledge about her world. She sees the robot and interacts with him through the screen of lived experience, which yields analogies that reduce its non-human differences. By listening to her tales with a “level of selfless concentration no human. . . could replicate” (118), Hiro performs his caring duties in an unobtrusive manner, gaining her trust.

This part of the novel (the chapters entitled “Sayoko”) alternates between dramatised analepses and the story’s current time, with rapid contextual changes or “frame switches” (Emmott 1997). The past is re-enacted, rather than remembered, in self-contained fictions within the larger novel that feature Sayoko as Laqui (her original name) and are mostly narrated in the third person. This formal choice affects how readers view the robot’s role; Hiro barely interferes with the unfurling of Sayoko/Laqui’s narrative. His unthreatening, discreet presence is anything but dystopian. His gentle nudging helps to create “an enchanted space” (144) where the past can be invited back. Companion robots, the novel suggests, can meet a simple need: “Sometimes, I want to be heard”, says Sayoko, “and finally understood” (309). No qualms are raised about the potential for deception in this interaction. While Turkle (2015) argues that robots “can deliver only performances of empathy and connection”, Romano-Lax explores a different configuration, emphasising the compensatory function of robots that care. Does Hiro really understand? Is the robot’s listening truly empathic? These questions are left unexpressed in the “Sayoko” sections

of the novel, possibly because the most disquieting concern is not the robot's but the humans' lack of understanding, the enforced secrecy Sayoko had to endure to pass as a Japanese, the many silences that punctuated her life. Given this context of oppression and dehumanisation, it becomes plausible that "a mere machine", non-complicit with historical hurts, succeeds in uprooting the truth. The past vividly evoked in successive interludes is the backdrop against which the care robot can be perceived as socially desirable.

But Angelica has reservations. The caregiving robot poses a threat to her job, or so it appears: "Everything she counted on was just one upgrade, one artificial blink away from disappearing" (114–15). Furthermore, unlike the reader, Angelica is not privy to Sayoko's conversations with Hiro. Being left in the dark increases her fear of displacement. She can only register the changes in Sayoko's behaviour ascribed to her conversations with Hiro—positive changes as Sayoko's mind seems sharper, but also troubling ones that lead Angelica to question her caring skills:

It was no surprise that engineers wanted to solve the problem of imperfect, impatient, overworked caregivers. It was no surprise they'd wanted to solve the problem of loneliness and isolation, the problem of lopsided societies with so many old people, needing care.

We have come to this. It's here.

It seemed both unbelievable and inevitable.

She no longer questioned Hiro's capacity for emotion. She no longer questioned his capacity for offering solace. She only questioned her own (284).

The novel deftly interweaves Angelica's understandable anxieties and self-questioning with the mounting realisation that perhaps "robots could harmoniously augment the capabilities of human helpers" (133). What turns the tables, leading Angelica to become more accepting of Hiro, is—realistically—sheer exhaustion and the unsustainable hardships of her uncertain existence: "she was too close to empty too much of the time now" (70). While the daily routines of care simply keep her busy, other stressors intervene to unsettle her work–life balance and psychological health: the loan shark back in the Philippines demanding money she can hardly spare, her brother's declining health, uncertainty about her visa, an unexpected pregnancy, the looming birthday party to organise. The list is long. The intense focalisation on her thoughts augments the sense of untenable stress this narrative never fails to convey. It seems plausible, therefore, that the human caregiver, herself in need of care, ultimately turns to the robot and accepts his help.

This is a gradual process marked by ambivalence that brings to the fore every ethical objection to the use of social robots—privacy harms, issues of safety, reduced human contact, the deception of artificial sympathy—and, at the same time, validates the worth of AI-enabled caregiving machines. Angelica's preoccupations are reasonable; they echo arguments that are well-known in the field of care ethics. "What will become of the natural—and noble—human impulse to take care of the needy if technology is always there as the first, easiest and cheapest 'solution'?", Pittinsky (2022, p. 52) asks, "Do we really want to outsource this cornerstone of our humanity?" The novel shows compellingly that the natural and noble human impulse to care is already being outsourced to marginalised and disempowered categories of workers (migrants, women, people of colour) and that within this unfair regime of care the prospect of robotic caregivers, supplementing human labour, becomes rather appealing. Readers are enticed to contemplate this prospect not from an abstract angle, but from the specific perspective of an overworked and apprehensive migrant caregiver who has nowhere else to turn. "It is this denigration of care work, the lip service paid to its ethical value notwithstanding" DeFalco (2020, p. 35) remarks, "which makes it an ideal candidate for roboticization". As we follow Angelica's onerous daily round of care duties, compounded by private worries, the possibility that she might eventually warm up to the robot and gain some benefits from this collaboration appears desirable, all the more so since Angelica struggles to adapt to Hiro, wanting to retain the primacy of human care. In subtle ways, the novel guides readers to weigh the costs and

benefits of both human and robotic care, eschewing the idealisation of the former, and showing that acceptance of the latter is contingent on the myriad circumstances that render the emotional labour of care a challenging task for any human. As [Puig de la Bellacasa \(2017, p. 8\)](#) observes, care is “a living terrain that seems to need to be constantly reclaimed from idealized meanings, from the constructed evidence that, for instance, associates care with a form of unmediated work of love accomplished by idealized carers”. Zooming in on the all too familiar problem of poorly paid workers bearing the burden of care, *Plum Rains* imagines a partial solution that pushes the boundaries of technological plausibility (Hiro is a marvel of technology, fast learning and quasi-human) to highlight human and societal failings.

These failings are so pronounced and unsolvable according to realistic standards of narration that a decisive swerve in the direction of science fiction and the improbable is necessary to bring this story to a close. It takes only a couple of weeks for fast-learning Hiro to develop capabilities that render him a veritable Deus-ex-machina. Nothing short of technological magic will suffice to disentangle Angelica from the knotty predicaments of her migrant condition. In the novel’s plot, Angelica’s pregnancy, flagged to the authorities by the kenkobot, makes her a candidate for expulsion since “it is no longer legal for a non-Japanese resident to be pregnant, without advance federal permission” (280), as Hiro promptly reminds her. When two officers appear at the door to escort Angelica, Hiro springs into action and turns into a saviour to protect her, all the while speaking Cebuano (Angelica’s mother tongue). The rhythm of the narrative accelerates concomitantly with Hiro’s decisive actions, they flee from the authorities, Angelica’s miscarriage is averted by Hiro’s impromptu surgical skills, and his rational decision-making prevent them from being caught, landing Angelica safely in the home of her lover (and his accepting wife) where she can carry the pregnancy to term. As a robotic caregiver Hiro fully proves his worth.

In the final part of the novel, the science fictional or speculative dimension prevails. Alongside this change in mode, a vision of posthuman care also begins to take shape, anticipated by Sayoko and Hiro’s bonding, and fully realised when Angelica too embraces an expanded sense of relationality and interdependency between human and non-human others. “Posthuman care”, writes [DeFalco \(2020, p. 49\)](#), “is not about replacing human care, it is about augmenting and hybridizing it”. It is care that “works with and from a non-anthropocentric vision of human/non-human relations”. In the novel, these relations are grounded on shared vulnerability: “we are all commodities” (348) Hiro reminds Angelica. His super-powers and emotional abilities notwithstanding, the robot remains disposable—an untested and contested prototype unlikely to be fully implemented. The non-human member within this community of care is also the one mediating between Sayoko and Angelica, emphasising similarities in their respective experiences and therefore increasing rather than reducing human contact: “You have more in common with Sayoko-san than either of you realize”, observes Hiro, “In fact the parallels are surprising and perhaps this feeds my inappropriate curiosity. We are pattern-seeking creatures” (289). Ultimately, *Plum Rains*, like other novels that imagine intelligent machines in the midst of messy, human-made realities ([McEwan 2019](#)), reserves a special place to the non-human, well beyond the confines of credibility. Hiro’s heroism is a blatant fantasy of technological solutionism in a text otherwise fully attuned to the intricate nature of current care systems and their deficiencies. Within the textual actual world, the utopian streak Hiro represents offers only a momentary respite from the dystopian future-present of the characters. It is not *the* solution to the problems the novel has explored, only a temporary, speculative fix that feels emotionally satisfying.

4. Conclusions

“Robots will not save Japan” recites the title of Wright’s book (2023). Andromeda Romano-Lax would probably agree. Her novel certainly encourages readers to consider the bigger picture, the larger socio-economic contexts in which care robots operate, and the painful baggage humans bring to the table in their interaction with machines—all

variables and factors that are too subtle and unpredictable to be included in the standardised models of care roboticists work with (Wright 2023, p. 56). For Wright (2023, p. 145) one possible corrective to “algorithmic care” is to include “the views of older people and their caregivers—the ultimate end users of care practices and arrangements – . . . in sociotechnical imaginaries about the future and in research and development processes”. Most of the studies I have considered in Section 2 reach a similar conclusion, whether emphasising the importance of co-design practices and participatory engagement of end users (Ostrowski et al. 2021), or calling for in-depth investigations of older people’s needs that would allow for a more effective customisation of care machines (Frennert and Östlund 2014).

To the extent that novels can provide narrative evidence to inform public reasoning, as Dillon and Craig (2021) argue, *Plum Rains*’ contribution rests on two main aspects, both specific to the dynamics of signification in imaginative literature. First of all, the latitude of fiction is such that it encompasses the unheard language of the mind, inner happenings, the mixture of thoughts, perceptions, and memories that this novel articulates expansively to represent embodied and situated care. A great deal of attention is devoted in this fictional experiment to detailing (or imagining) the motivations, fears and expectations of a migrant caregiver and her elderly patient—the end users of technology whose opinions and sensibilities should matter more than they currently do. Secondly, the novel invites readers to entertain a hybridised vision of care, not discarding robotic assistance on the basis of humanist arguments, nor endorsing techno-solutionism, while reminding us, on every page, that the fantasy of robots that care is fuelled by the reality of devalued human care work. “I don’t write novels with pat conclusions in mind”, writes Romano-Lax (2018a), “for example about whether or not we should oppose our dependence on artificial intelligence”. Speculative fiction is not in the business of prediction, but it can “illuminate the path between today’s choices and tomorrow’s consequences” (Romano-Lax 2018a).

Extrapolating from today’s choices to imagine future consequences, *Plum Rains* shuns the anxious representation of intelligent machines outsmarting and outliving the humans. Hiro, like Klara in Ishiguro’s novel Ishiguro (2021), manifests no desire to rebel or to claim the rights of the humanist liberal subject. In this respect, Romano-Lax’s robot is similar to other artificial creatures, in Japanese culture, endowed with *kami* and non-defiant (Sone 2017). Opting for this imaginary robot type, fundamentally unthreatening, is an interesting choice in the light of current debates on care robots that foreground ethical challenges and risks. As I have contended in this article, the novel is more interested in exploring human responses than it is in adjudicating whether or not robots can care. In *Plum Rains* they can—which clears the way for further reflections on the nexus of social, personal, economic and geopolitical complications that even the most sophisticated products of technology fail to redress, as the novel’s ending reveals.

Plum Rains features not one but two “epilogues” which project two slightly different versions of Angelica’s future. In the first version, not much is altered; she continues to work as a caregiver in a nursing home, her baby is given up for adoption, and Hiro and other care robots like him have become commonplace. Angelica misses his friendship. A sense of resignation pervades this scenario. In the second epilogue, Angelica and her baby are stationed in a “detention hospital” where she is being treated for alleged mental disorders and indoctrinated to “harmonise” conflicting emotions, and to accept the imminent separation from her baby. But Hiro arrives—a new and improved version, equipped with “bimodal skin” (229), clad in human clothes, more resourceful than ever. He hacks into the hospital’s security system and makes it possible for Angelica and her daughter to flee back to the Philippines. In both epilogues, the underlying conditions that have caused Angelica’s troubles remain unaddressed. So, somewhat paradoxically, the good robot is instrumental in exposing the limits of technological fixes, and the ideological assumptions underpinning them. This novel does not inspire fear of technology, nor does it endorse techno-optimism. For all its speculative leanings, *Plum Rains* deftly succeeds in casting light on the material conditions of our care crisis, championing “the worth of the

dispossessed” (Ladd 2018), accustomed to feeling broken and inadequate, who find some solace in the connections they form, “bound together by need and by chance” (11).

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Notes

- ¹ See <https://aiforgood.itu.int/speaker/grace/> accessed on 24 July 2023.
- ² American-born author Romano-Lax has written five novels. *Plum Rains* is her first foray into speculative fiction. It won the Sunburst award for excellence in Canadian literature of the fantastic. The novel has received positive reviews (Ladd 2018; Bardsley 2018), and enthusiastic appreciations on the Goodread platform, but it has garnered no sustained critical attention hitherto. To the best of my knowledge, this article provides the first extended critical examination of *Plum Rains*.
- ³ Examples include the television series *Humans* (UK/USA, Channel 4/AMC, 2015–2018), which has a sub-plot in season 1 centred on the relationship between retired robotics expert George Millican and Odi, his robot caregiver, and the films *Big Hero 6* (dir. Don Hall/Chris Williams, USA 2014) and *Robot and Frank* (dir. Jake Schreier, USA 2012). See Yugin (2021) and DeFalco (2016a).
- ⁴ Yugin’s argument builds on Donna Haraway’s theories expounded in her books *The Companion Species Manifesto* (Haraway 2003) and *Staying with the Trouble* (Haraway 2016).
- ⁵ The novel has 23 chapters, 16 entitled “Angelica”, 7 entitled “Sayoko”.
- ⁶ Discussing works that deal with the phenomenon of the “comfort women” of World War II, Stetz (2023, p. 19) mentions the experiences of Sayoko in *Plum Rains*, arguing that the novel alludes to “Japanese denialism around this issue”.

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