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Indy R&D: Doing HCI Research Off the Beaten Path

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Abstract

This panel discusses independent research and development in HCI. We focus on possible models for Indy R&D operations, supporting infrastructures, practical methods, and taking advantage of academic skills in the transition. Panel participants have experience in several different models of funding, conducting, and disseminating results from independent research. We will provide the audience with practical tips to help them decide if Indy R&D is right for them, and if so, help them do it.

Author Keywords

Research; development; design; independent; start-up

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Design, Experimentation, Management, Human Factors

Introduction

Increasingly we can do HCI research without huge grants or the backing of a large corporation. We are lucky; we don't require linear accelerators or hazardous chemicals to do our work. Open-source hardware and software helps us get systems off the ground quickly and cheaply, HCI evaluation techniques are not

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onerously expensive, and high-end prototyping tools like 3D printers and laser-cutters are becoming increasingly available to the masses. At the same time, we notice an increasing amount of pessimism and anxiety in the academic job market [1]. We hope to show, in this panel, that if you love what you do, then your PhD is *not* a waste of time, and that your options for doing good, interesting, fulfilling research and development are better than you might think.

Topics to be Covered

We start by examining models for Indy R&D, moving on to how we actually *fund* and *do* Indy R&D, and end with a discussion of the transition from academia into research independence. Throughout the panel we focus on practical measures that will help audience members go out and start their own research adventures.

Indy Research Models

We feature panelists who have experience with different models of independent research. We will discuss the pros and cons of each model, and help audience members decide which is best for them.

One possible model for Indy R&D is to develop an in-depth research project into a compelling product and release it into the “real world”. This model carries a clearly scoped piece of research to its logical conclusion, presenting challenges and opportunities in adapting a research idea for broad everyday use. Such projects are often good candidates for venture funding. Brewer’s frestyl and Gibb’s Bug Labs are examples of this Indy R&D model.

Another model of independent research involves bootstrapping a research lab by taking on consulting projects in ones area of expertise. In this case,

research enriches the consulting work while contracts can inspire and focus certain research trajectories. The lab serves as an incubator for early stage research projects, which can be spun off as companies (using the first model) if and when they reach the appropriate stage of maturity. Wilhelm’s SQUID Labs and Williams’ Wyld Collective operate on this model.

It is also possible, as an independent researcher, to find grants that will support your research. Gibb can share her experiences with this research model.

Research Infrastructures

One issue to be aware of in deciding to do Indy R&D is how to deal with some of the assumptions embedded in infrastructures meant to support research. Research funding opportunities are typically aimed at principal investigators with faculty or corporate research positions. The panel will explore funding options that are available to the independent researcher, including small business and artists’ grants, venture funding, consulting fees, paid speaking engagements, and even Kickstarter projects.

Publishing is a principal way by which we communicate our research results and position our work within our research community. Yet academic publishers can charge hefty subscription fees that are not affordable for small startups. Conference registration fees present similar difficulties. We discuss effective workarounds, and point out alternative publishing models and their implications for the indy researcher.

Practical Methods

This panel will inform audience members of some practical methods that can help them actually start their Indy R&D operation. Audience members who are

considering the option should leave feeling able to formulate a plan of action.

Some of the practicalities of Indy R&D involve teambuilding and coordination (startup teams need to be tighter and longer-lasting than most research collaborations); finding the best tools at the most affordable prices for activities like user testing, wireframing, and prototyping (we're happy to share our favorites); finding communal spaces that provide equipment and collaborators (look up your local hackerspace!); creating a business model; and coming up with creative funding and branding ideas.

One area that deserves special consideration, especially for those who are developing a single in-depth project, is the formulation of good distribution strategies. We rarely grapple with this in institutional HCI research, beyond recruiting for user tests. Yet for those of us who want our work to have broad impact, it is a crucial part of the development process. More generally, we discuss the issue of finding balance between research and development, and creating productive feedback loops where each of those activities can inform the other.

You Know More Than You Think: Making the Transition

While Indy R&D will require you to pick up some new skills (like how to write a business plan), and unlearn others (like academic jargon), spending time in institutional research still confers many skills that will benefit you as an independent operator. Methodology and rigor still matter. You already know how to network – use that skill! You have already built up a broad network of collaborators and advisors; you already know who you trust professionally. These are connections that you can continue to rely on. Most importantly, if you

have written a major thesis, then you know how to stick it out through a long, difficult, and interesting project.

Who is this panel for?

This panel is directed at students who are wondering what to do after they finish graduate school, researchers who are tired of working for the man, industry attendees who are hungry for more innovation in their lives, and anyone who might have a little problem with authority. This panel is for anyone at all who wants to do the research they love and still put food on the table.

Participants

Contrasting Perspectives, Practical Focus

Because the topic of the panel itself goes against the grain of most CHI research practice, we believe there will be enough curiosity to fuel an interesting discussion amongst panelists and audience members. For this reason, we do not aim to compose our panel out of members who will substantially *conflict* with each other. Instead, we are seeking out people who will have *contrasting perspectives* on Indy R&D: four entrepreneurs who exemplify different models of research and development, and a conference organizer who sees the most innovative work to come out of the startup scene every year. Each panelist has a different angle on Indy R&D, and each of these angles is necessary for producing the sea change needed to allow this practice to really blossom.

Keynote Panelist

We will include the keynote panelist Hugh Forrest because of his role in curating panels and presentations from some of the most innovative startups and small businesses in the country. He should be able to provide a broad overview of the state of indy innovation in North

America. Forrest has confirmed that he is willing to participate in this panel.

Invited and Confirmed Panelists

Amanda Williams is a co-founder of Wyld Collective Ltd, an independent design/research consultancy based in Montréal. She will introduce and moderate the panel.

Johanna Brewer is a co-founder and CEO of frēstyl, a start-up from Rome that helps people to discover local music events, and makes it easier for musicians and venues to promote their live music.

Eric Wilhelm is a co-founder of SQUID Labs, an independent consultancy and engineering research lab, and CEO of Instructables, the world's largest show-and-tell platform.

HOW PROFESSORS SPEND THEIR TIME

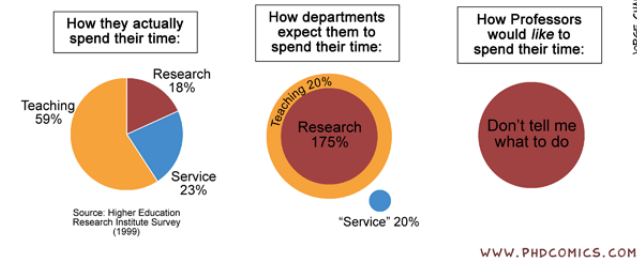


Figure 1: We all have to pay for the research we do. "Piled Higher and Deeper" by Jorge Cham www.phdcomics.com

Alicia Gibb, formerly of Bug Labs, does independent research and development. She is a member of

NYCResistor and a pioneer in the Open source hardware movement, co-chairing the Open Hardware Summit.

Conclusions

We all want a job that allows us to research what we love 100% of the time. But at a university, you will devote time to teaching, service, and grant writing in order to support your research. At a corporate lab, you may be asked to work within a domain that will support the corporation's bottom line. We do not state this to criticize, merely to point out that we have to pay for our research somehow. In Indy R&D you trade safety for freedom, and you learn (as you would anywhere) how to support your own research practice.

Indy R&D allows us to reflect on questions that are core to our research community: What should CHI contribute to the world? How do we ensure that our discoveries have an impact on real technology use? How do we support each other in our innovative work? We can advance the state-of-the-art in HCI, and in any area affected by interactive technology, by designing creative new interfaces, and new methods for researching them, creating them, and getting them out into the world. Indy R&D is an exhilarating, accelerating practice that combines real-world concerns with academic curiosity. We believe that it is poised to contribute, not just to CHI, but to the world at large.

Citations

[1] The disposable academic: Why doing a PhD is often a waste of time. *The Economist*. December 16, 2010. <http://www.economist.com/node/17723223>