Heather Nelson, Computer Science

Year in School: Senior
Hometown: Wildwood, MO
Faculty Mentor: Dr. Chi-Ren Shyu, Computer Science

Genealogy browser: A framework for the management and analysis of genotypic and phenotypic plant data
Heather Nelson & Chi-Ren Shyu

Researchers who study plants need an efficient way to manage data that provides insight into genealogy and its effect on genotypic and phenotypic expressions. Traditional pencil and paper methods, arising from the need to collect data from the field, prove time consuming and error prone when tracking plant lineage. Genealogy Browser presents an effective method for plant management. By providing a web interface that collects information about plant families and relationships, the application provides the framework for data analysis. This setting allows researchers to collaborate about common plants and to become aware of the traits seen in other research groups. Furthermore, the application analyzes current gene and phenotype information to demonstrate where plants deviate from the expected, which will be of great importance to researchers especially as they study crops in varying climate settings. Genealogy Browser proves extremely vital for researchers needing to manage thousands of plants while obtaining useful information that sheds light on genotypic and phenotypic trends.