

Ira Horecka

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WORK EXPERIENCE

University of Toronto

Sept. 2021 – Present

PhD Student, Molecular Genetics

Toronto, ON

- Developed RISK, a scalable tool for annotating and visualizing large biological networks.
- Quantified crosstalk between biological pathways using genetic interaction data from *S. cerevisiae*.
- Identified moonlighting proteins and predicted drug targets using genetic and chemical-genetic datasets.
- Validated predictions with statistical benchmarking and comparative analyses against established methods.
- Developed full-stack web applications to support automation system operators.
- Built a Python-based visualization interface for real-time exploration of large-scale biological networks.
- Collaborated with experimentalists and engineers to refine usability and validate predictions.

Personalis, Inc.

Jul. 2020 – Aug. 2021

Laboratory Process Automation Engineer

Menlo Park, CA

- Served as a core Hamilton VENUS developer; wrote error-safe API wrappers for four external devices.
- Integrated Python with Hamilton methods to enhance code readability and capacity.
- Built full-stack utility web apps to assist automation system operators.

Five Prime Therapeutics

Dec. 2017 – Sept. 2019

Research Associate II

South San Francisco, CA

- Led molecular biology workflows and collaborated with systems engineering.
- Developed automation protocols; trained users on Tecan, Beckman FX, and Qpex platforms.
- Used Python and R for automation scripting, statistical analysis, and visualization.

Bayer

Nov. 2016 – Dec. 2017

Associate Scientist

Berkeley, CA

- Improved protein recovery 7.5x by optimizing a chromatography step.
- Co-developed a scalable downstream process from bench to pilot scale.

EDUCATION

University of California, Santa Cruz

June 2016

BS, Biochemistry and Molecular Biology

Santa Cruz, CA

SKILLS

- Programming: Python, R, Git; Tools: NetworkX, Cytoscape; Stats: overrepresentation testing, data visualization
- Wet Lab: liquid handler protocols, molecular cloning, protein purification

PROJECTS

- Projects include RISK (network annotation), API wrappers, and scientific tools available on GitHub and [irahorecka.com](https://github.com/irahorecka).

SELECTED PUBLICATIONS

- Clarke, Jesse, et al. "A conserved signaling network monitors delivery of sphingolipids to the plasma membrane in budding yeast" *Molecular Biology of the Cell*, vol. 28, no. 20, 2017, pp. 2580 - 2599.
- van Leeuwen, Jolanda, et al. "Exploring Genetic Suppression Interactions on a Global Scale" *Science*, vol. 354, no. 6312, 2016, pp. aag0839.