

Brad Crone

Linkedin: <https://www.linkedin.com/in/brad-crone>

Github: <https://github.com/bcrone>

Email : crone.brad@gmail.com

Mobile : (319)461-6542

EDUCATION

- **University of Michigan** Ann Arbor, MI
Ph.D. Bioinformatics September 2018 - April 2024
Courses: Bioinformatics Concepts and Algorithms, Statistical Computing, Statistical and Numerical Methods in Human Genetics.
- **University of Iowa** Iowa City, IA
B.S. Computer Science; B.S. Mathematics August 2010 - May 2014
Courses: Linear and Matrix Algebra, Numerical Analysis, Object-Oriented Software Design, Optimization Techniques.

RESEARCH AND PROFESSIONAL EXPERIENCE

- **Department of Computational Medicine and Bioinformatics, University of Michigan** Ann Arbor, MI
Graduate Student Research Assistant (Alan Boyle Lab) Sept 2018 - May 2024
 - Prioritized trait-relevant functional mutations to improve accuracy of trans-ancestral polygenic risk scores
 - Developed algorithm for iteratively constructing and optimizing multiple-tissue risk models for complex traits
- **Department of Computational Medicine and Bioinformatics, University of Michigan** Ann Arbor, MI
Graduate Student Instructor (Bioinformatics Concepts and Algorithms) Jan 2022 - May 2022
 - Assisted students with in-class algorithm implementations and understanding lecture concepts
 - Held office hours to provide help with homework and lecture questions outside of class time
- **Iowa Institute of Human Genetics, University of Iowa** Iowa City, IA
Application Programmer (Bioinformatics) Jun 2016 - Aug 2018
 - Produced and maintained custom genetic analysis pipeline scripts and tools, from data pre-processing to analysis to archiving
 - Contributed to development and curation of publicly-available genetic variation database of genes associated with hearing loss and deafness
 - Administered test and production instances of Galaxy bioinformatics suite in HPC environment
- **Advanced Biomedical Informatics Group, LLC** Iowa City, IA
Software Engineer May 2014 - Jun 2016
 - Member of data management team for global PREDICT-HD Huntington's disease study
 - Migrated study participant MRI scan session data from local storage to cloud-based repository for dissemination
 - Conducted pre-processing of neuroimaging data leveraging custom-built MATLAB scripts and neurological analysis packages
 - Implemented statistical analyses and generated visualizations of study participant demographics

SKILLS SUMMARY

- **Languages:** Python (pandas, numpy, snakemake), R (tidyverse), SQL (MySQL, Postgres), Bash scripting
- **Tools:** PLINK, BEDtools, bcftools, Atlassian, Microsoft Office
- **Technical:** Statistical modeling and analysis, software development, version control, data visualization
- **Personal:** Problem solving, analytical thinking, communication, collaboration, documentation

PUBLICATIONS

- **Crone, B., Boyle, AP.** "Enhancing portability of trans-ancestral polygenic risk scores through tissue-specific functional genomic data integration." *bioRxiv* 2024.
- **Crone, B., Krause, AM, Hornsby, WE, Willer, CJ, and Surakka, I.** "Translating genetic association of lipid levels for biological and clinical application." *Cardiovascular Drugs and Therapy* 2021, 35(3): 617-626. PMID: 33604704
- **Azaiez, H., Booth, KT, Ephraim, SS, Crone, B., Black-Ziegelbein, E., Marini, RJ, Shearer, AE, Sloan-Heggen, CM, Kolbe, D., Casavant, T., Schnieders, MJ, Nishimura, C., Braun, T., Smith, RJH.** "Genomic Landscape and Mutational Signatures of Deafness-Associated Genes." *American Journal of Human Genetics* 2018, 103(4), 484-497. PMID: 30245029