Jacob Blindenbach

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EDUCATION

Columbia University *New York, NY,* August 2022 - Present

Ph.D. Candidate for the Department of Computer Science (GPA: 4.23)

- Thesis topic: Optimizing privacy and utility tradeoffs for genomic data sharing
- National Science Foundation Graduate Research Fellowship Program (2023 - 2026)
- Advisor: Gamze Gürsoy
- Member of the G2Lab / New York Genome Center

University of Virginia, School of Engineering, *Charlottesville, VA,* August 2018 - May 2022

B.S. in Computer Science and Mathematics (Cumulative GPA: 3.971, Major GPA: 4.0)

- *Rodman Scholar*: honors distinction awarded to the top 5% of engineering students

INDUSTRY EXPERIENCE

***Software Engineer Intern*, Microsoft** *Redmond, WA,* May 2021 - August 2021

- Worked on a cybersecurity team (Microsoft Defender) to improve device security for over 700 million devices
- Designed and implemented APIs with high throughput (27,000 requests per second)

***Software Engineering Intern*, Appian** *Tysons, VA,* June 2020 – August 2020

- Worked on a cloud monitoring infrastructure team

PUBLICATIONS

Avoiding genetic racial profiling in criminal DNA profile databases

Jacob A. Blindenbach*, Karthik A. Jagadeesh*, Gill Bejerano and David J. Wu (*contributed equally)

Nature Computational Science, 1 (4), 2021 https://doi.org/10.1038/s43588-021-00058-3

- Featured on the cover of the April 2021 addition
- Presented at GenoPri 2021 and SRC TechCon 2020
- Had press coverage by Stanford Medicine
- Designed and implemented a novel oblivious evaluation of layered finite state machines algorithm which is used to hide innocent queried DNA profiles from criminal DNA databases to prevent misuse of genetic data which often leads to racial profiling. This algorithm can privately query a database with one million DNA profiles in under 40 seconds
- Sponsored by the Joint Undergraduate Microelectronics Program and the Undergraduate Research Initiative

SQUiD: ultra-secure storage and analysis of genetic data for the advancement of precision medicine

Jacob Blindenbach, Jiayi Kang, Seungwan Hong, Caline Karam, Thomas Lehner, Gamze Gürsoy

Genome Biology 25, 314 (2024). https://doi.org/10.1186/s13059-024-03447-9

- Presented at RECOMB 2024
- Submitted provisional patent for the innovations

On the overflow and *p*-adic theory applied to homomorphic encryption

Jacob Blindenbach, Jung Hee Cheon, Gamze Gürsoy, Jiayi Kang

Cyber Security, Cryptology, and Machine Learning. CSCML 2024. Lecture Notes in Computer Science, vol 15349. Springer, Cham. https://doi.org/10.1007/978-3-031-76934-4_18

SKILLS

- Proficient in: *Python (Numpy, MatPlotLib, Pandas, PyTorch), C#, C++, JavaScript, Git, Java*
- Fluent in Dutch (native speaker) and conversant in German
- Competed at the swimming Olympic Trials / Dutch National Championships in 2021, placed 19th in the country
- Cycled 100 miles around Central Park on a CitiBike