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Education

- **Doctor of Philosophy** (Mathematics) from the **University of Colorado**, Boulder CO. Thesis under the supervision of Katherine Stange, *Applications of hyperbolic geometry to continued fractions and Diophantine approximation*, available here.
- **Master of Science** (Mathematics) from **The Ohio State University**, Columbus OH.
- **Bachelor of Science** (Mathematics) from the **University of Michigan**, Ann Arbor MI. Coursework in math, physics, computer science, and astronomy.

Employment history (selecta)

- (August 2021–November 2024) **Mathematician, cryptographer, and engineer** with EndoSec LLC, Washington DC. Research, analysis, design, protoyping, and testing of anti-tamper cryptographic hardware. Additionally assisted with writing proposals, hiring, mentoring, technical writing and presentations, consulting with potential clients, etc.
- (January 2021–April 2021) **Research assistant** with Babel Analytics, Tulsa OK. Machine learning for automated medical diagnostics (image processing).
- (August 2019–May 2020) **Visiting faculty** at Grand Valley State Univeristy, Allendale MI. Teaching mathematics and mathematics research.
- (August 2013–May 2019) **Graduate student instructor** at the University of Colorado, Boulder CO. Teaching mathematics and mathematics research.
- (June 2006–December 2009) **Graduate student instructor** at The Ohio State University, Columbus OH. Teaching mathematics and mathematics research.

Skills &c.

While I do not claim to be an expert in everything listed, I am willing and able to discuss and defend the following topics, among others. My most marketable skill is the ability to quickly add whatever you want to this list.

- Mathematics broadly: algebra, analysis, geometry/topology, applied, computational
- Cryptography theory, application, and implementation: (a)symmetric, post-quantum, lightweight, multi-party computation, zero-knowledge, FHE, RNG, PUFs, etc.
- FPGA development: HDL, simultation, vendor tools
- Side-channel analysis, countermeasures, testing
- Teaching and technical exposition
- Programming: Python, C/C++, VHDL, others
- Data science and machine learning
- Linux, Git, LaTeX, ...

Publications

- *Public-key encryption from a trapdoor one-way embedding of* $SL_2(\mathbb{N})$, preprint, eprint.
- *An infinite product on the Teichmüller space of the once-punctured torus*, preprint, arXiv.
- *Examples of badly approximable vectors over number fields*, preprint, arXiv.
- *Badly approximable numbers over imaginary quadratic fields*, *Acta Arithmetica* **190** (2019), 101–125, arXiv.
- (with Sneha Chaubey, Elena Fuchs, and Katherine Stange) *The dynamics of super-Apollonian continued fractions*, *Trans. Amer. Math. Soc.* **372** (2019), 2287–2334 , arXiv.