

SUMMARY

Results driven Computer Science and Mathematics student with the ability to quickly recognize solutions to complex problems seeks a position that will leverage his technical skills to solve unique and difficult problems at the intersection of math and computer science. Dedicated to continuing skill advancement. Experience includes Python, Mathematica, Scala, C/C++, TypeScript/JavaScript, AngularJS/2, Probability/Statistics, Operations Research, Machine Learning, Topology, Real Analysis, and Abstract Algebra.

EDUCATION

- **University of Colorado Boulder** Boulder, CO
Concurrent BS/MS student in Computer Science, minor in Math. GPA: 3.87 *Aug. 2015 – Present*

EXPERIENCE

- **WebF1 Consulting** Boulder, CO
Data Scientist *July 2018 - Present*
 - **Scheduling Theory:** Investigating various scheduling scenarios for both manufacturing and service industries in order to identify scheduling problems that are applicable to a wide range of customers, and whose solutions are tractable. Solutions to those problems will be implemented in the platform.
- **Computer Science Theory Department at CU Boulder** Boulder, CO
Undergraduate Research Assistant *May 26, 2018 - Aug 3, 2018*
 - **Symbolic Dynamics:** Learned the theory behind shifts of finite type, in particular vertex shifts. Proved that it is decidable if two vertex shifts are conjugate via a given 1-block code. This was an effort to understand the general decidability problem of conjugacies of vertex shifts.
- **Summer REU in Mathematics at CU Boulder** Boulder, CO
Undergraduate Research Assistant *May 14, 2018 - Jun 29, 2018*
 - **Category Theory, Algebraic Topology, and Group Cohomology:** Worked with a previously published group cohomology research paper in order to extend the results presented. Research included category theory including coproducts and symmetric monoidal categories, and algebraic topology through the form of simplicial complexes.
- **Buffalo Academy** Boulder, CO
Tutor in Computer Science and Mathematics *Jan 2017 - Present*
 - **Tutor:** Tutoring in Calculus and Data Structures.
- **Independent Study in Persistent Network Analysis** Boulder, CO
Undergraduate Research Assistant *Aug 2017 - Dec 2017*
 - **Information Theory:** Studied the mathematics behind mutual information and transfer entropy. Calculated transfer entropy for data from generators in a power systems network.
 - **Persistent Analysis:** Built a filtration of graphs using the transfer entropy data and applied network measures to each graph. Used average clustering coefficient and the length of the cycle basis.
 - **Persistent Homology:** Learned about the theoretical background of persistent homology and how it could be applied to networks.
- **Summer REU in Mathematics at CU Boulder** Boulder, CO
Undergraduate Research Assistant *Jun 12, 2017 - Jul 28, 2017*
 - **Computational Commutative Algebra:** Wrote extensive Mathematica code for working with the Honda formal group law.
 - **Algebra:** Learned about formal group law algebra, formal group law morphisms, the p -adic integers, field extensions, group actions, and coinvariants. Spent significant time working with ideals of formal power series.
- **WebF1 Consulting** Boulder, CO
Software Engineer *Summers of 2014-2017*
 - **Frontend Developer:** Frontend Developer: Responsible for developing frontend views for Single Page Applications. I was responsible for correctly implementing back end WebAPI services. The applications consist of Donor Management, CRM, and Business Collaboration for several clients.
 - **Mobile Developer:** Responsible for writing a mobile version of the client's web application. Learned and worked with Angular2 and Ionic2 Framework.

TECHNICAL SKILLS

- **Languages:** Python, Javascript, Typescript, Mathematica, Scala, C/C++, Java, HTML5, CSS
- **Technologies:** AngularJS, Angular2, Git, \LaTeX
- **Mathematics** Probability/Statistics, Operations Research, Machine Learning, Topology, Real Analysis, Abstract Algebra

ACHIEVEMENTS

- **Engineering Honors Program:** Honors Residential College at University of Colorado Boulder.
- **Coauthored Algebraic Topology Paper:** Preprint on arXiv: Computations of Orbits for the Lubin-Tate Ring
- **President Horace M. Hale Award:** CU Boulder Esteemed Scholars Program.
- **2014-2015 National Hispanic Recognition Program (NHRP) Scholar:** National Award.
- **Dean's List:** Have made Dean's List for five consecutive semesters.