Luke Meszar

lukemeszar@gmail.com • 303.956.1806 • Denver, CO

Summary

Results driven Computer Scientist/Software Engineer 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 C#, Python, .Net Core/.Net Framework, C/C++, Java, Azure, Probability/Statistics, Operations Research, Machine Learning, Topology, Real Analysis, and Abstract Algebra.

Experience

Nimbulis Denver, CO

Software Engineer/Data Scientist *Aug 2019-Present*

.Net Core/.Net Framework back-end developer. Primary responsibilities include writing and testing the business logic and APIs. Was tasked with writing automatic software to detect certain sensitive forms (i.e., I-9 and W-4 forms) and remove sensitive information, primarily the SSN. This was done by training with Pytorch OCR models and the generation of large amounts of training data.

WebF1 Consulting Boulder, CO

Data Scientist *Jul 2018-Aug 2019*

- **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 2018-Aug 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 2018-Jul 2018*

- **Category Theory, Algebraic Topology, and Group Homology:** 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.

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 2017-Aug 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*

- **Front-end Developer:** Responsible for developing front-end views for Single Page Applications. I was responsible for correctly implementing back-end WebAPI services. The applications include Donor Management, CRM, and Business Collaboration for several clients.
- **Mobile Developer:** Responsible for writing a mobile version of the client's web application. Worked with Angular2 and Ionic2 Framework.

Education

- **University of Colorado Boulder**, Bachelor of Science in Computer Science, Minor in Mathematics
  August 2015 - May 2019, GPA 3.88/4.0
- **University of Colorado Boulder**, Master of Science in Computer Science
  January 2017 – August 2019, GPA 4.0/4.0

  Bachelor and Master of Science degrees obtained concurrently.

Skills

- **Languages:** C#, Python, Java, JavaScript, TypeScript, C/C++
- **Technologies:** Azure, .Net Core, .Net Framework, Git, WebApi/RESTful, Latex
- **Mathematics:** Probability/Statistics, Operations Research, Machine Learning, Algorithms, Theory of Computation, Topology, Real Analysis, Abstract Algebra

Awards

- **Engineering Honors Program:** Honors Residential College at University of Colorado Boulder. Graduated with engineering honors.
- **Latin Honors:** Graduated Magna Cum Laude.
- **Engineering Dean's Advisory Board Member:** Worked directly with deans and faculty from the CU Boulder College of Engineering.
- **Coauthored Algebraic Topology Paper:** Published in Journal of Homotopy and Related Structures Computations of Orbits for the Lubin-Tate Ring. (https://link.springer.com/article/10.1007/s40062-018-00228-7)
- **President Horace M. Hale Award:** CU Boulder Esteemed Scholars Program.
- **Dean's List:** Made Dean's List for seven consecutive semesters.