David E. McKnight

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EDUCATION

University of Alberta 2019-

M. Sc Computer Science, research-based. Ongoing. **GPA 4.0**

University of Oklahoma 2014-2019

B. S. Mathematics, May 2019. *Magna cum Laude*, **GPA 3.69**

B. S. Computer Engineering, May 2019. *Magna cum Laude*, **GPA 3.81**

Undergrad research in the area of linear algebra pedagogy, co-authored paper presented at the 2019 SIGMAA-RUME conference

Coursework: Machine Learning, Game Theory, Computer Architecture, Graph Theory, Operating Systems, Microprocessor System Design, Topology, Abstract Algebra I/II, Abstract Linear Alg., Theory of Computation, Algorithm Analysis, Digital Signals and Filtering, Signals and Systems

EMPLOYMENT

University of Alberta **Edmonton, Alberta**
Teaching Assistant Fall 2019-

- TA for CMPUT 355 Games, Puzzles, Algorithms, Winter 2020
- TA for CMPUT 272 Discrete Mathematics, Fall 2019

MiTek USA, Inc. **St. Louis, Missouri**
Software Engineer Summers 2017, 2018

- Developed an incident report viewing/editing application using C#, WPF, and Entity Framework
- Refactored (C#) unit tests and mocked with NSubsititute to eliminate external dependencies and reliance on database

Iowa State University VRAC **Ames, Iowa**
Research Intern Summer 2016

- Created a military simulation for the U.S. Army in Unity with C# as part of an Intelligent Team Tutoring project. Designed 3D models with Blender and AutoCAD.

LANGUAGES AND TECHNOLOGIES

- Proficient in *Java*, *C++*, *C#*, and *Python*. Familiar with *MATLAB*, *LaTeX*, *Mathematica*, and *JavaScript*
- Uses paradigms and tools such as *WPF*, *Entity Framework*, *CUDA*, *Git*, *TFS*, *JavaDoc*, *Doxygen*, and *UML*

SELECTED PROJECTS

- Developed a program in **C++** to construct 3D-printable triangular mesh approximations from continuous real bivariate functions. Sped up processing via parallelization with **CUDA**
- Created a **Java** chess application that supports user-created skin libraries, then ported it to **Android**
- Animated a winter night sky scene using fractals (IFS, Koch, and n-flake) and **OpenGL**/**JOGL**
- Designed an nth-order Butterworth filter generator in **Mathematica** and deployed to **Wolfram Cloud**
- Implemented a novel method for classifying butterflies using **neural networks** and **topological data analysis**

EXPERIENCE AND AWARDS

- President of OU's Math Club (Fall 2016-Present), Treasurer (Fall 2015), Vice President (Spring 2016)
- Captain of OU's ACM-ICPC Programming Competition Club (Fall 2017-Present)
- OU Presidential Honor Roll (Fall 2015, Spring 2017, Spring 2018), OU Dean's Honor Roll (all semesters)
- Mentored an FLL team that placed first in Robot Performance at the Brittany Woods Middle School FLL competition
- National Merit Scholar