

Logan Schelly

(951) 692-8802 • idyllogan@verizon.net

Objective

I am a recent graduate. My ultimate career goal would be to work on a project like Intel's Math Kernel Library. For the time being I am looking for an entry-level job in software, data, or (if possible) high performance computing.

Education

Bachelors of Science in Mathematics

Brigham Young University

April 2020

GPA: 3.17 out of 4.0

- Applied and Computational Mathematics Emphasis (ACME)
- Computer Science Minor
- Recognized for outstanding performance in Mathematics in 2020 and 2018

Course Work and Topics

- Fundamentals of Mathematics
 - Set Theory
 - Proof Techniques
 - Functions
 - Cardinality
 - Logic
 - Relations
 - Induction
 - Number Theory
- Linear Algebra
 - Solving Linear Systems
 - Vector Spaces
 - Quadratic Forms
 - Matrix Algebra
 - Eigenvectors
 - Singular Value Decomposition
 - Determinants
 - Inner Product Spaces
- Calculus of Several Variables
 - Quadric Surfaces
 - Partial Derivatives
 - Vector Calculus
 - Vector Functions
 - Multiple Integrals
- Differential Equations
 - First Order Differential Equations
 - Laplace Transformation
 - Second Order Linear Differential Equations
 - Systems of First Order Linear Equations
 - Series Solutions of Second Order Equations
 - Numerical Methods
- Theory of Analysis
 - Properites of the Real Numbers
 - Derivatives
 - Sequences and Series
 - Sequences and Series of Functions
 - Topology of \mathbb{R}
 - Riemann Integration
 - Limits and Continuity of Functions
- Mathematical Analysis
 - Abstract Vector Spaces
 - Contraction Mappings
 - Linear Transformations and Matrices
 - Daniell-Lebesgue Integration
 - Inner Product Spaces
 - Calculus on Manifolds
 - Spectral Theory
 - Complex Analysis
 - Metric Space Topology
 - Spectral Calculus
 - Fréchet Differentiation
 - Iterative Methods for Linear Systems
- Algorithm Design and Optimization
 - Measuring Algorithm Complexity
 - Polynomial Approximation and Interpolation
 - Data Structures
 - Unconstrained Optimization
 - Combinatorial Optimization
 - Linear Optimization
 - Probability
 - Nonlinear Constrained Optimization
 - Probabilistic Sampling and Estimation
 - Convex Analysis and Optimization
 - Random Algorithms
 - Dynamic Optimization
 - Harmonic Analysis
 - Stochastic Dynamic Optimization
- Modeling with Uncertainty and Data
 - Markov Chains
 - Machine Learning
 - Classical Inference
 - Unsupervised Methods
 - Hypothesis Testing
 - Graphical and Latent Variable Models
 - Regression and Classification
 - Kernel Methods
 - Bayesian Analysis
 - Tree-Based Methods
 - Estimation in State Space Models
- Modeling with Dynamics and Control

- Existence and Uniqueness Theorem
- Stability Theory
- Bifurcation Theory
- Partial Differential Equations
- Calculus of Variations
- Euler’s Equation
- Hamilton’s Principle
- Noether’s Theorem
- Optimal Control
- Pontryagin’s Maximum Principle
- Linear Quadratic Regulators

Skills

Programming Languages

Python ————— Very Comfortable ————— used in 8 lab classes and 4 lecture classes

- NumPy
- SciPy
- Matplotlib
- SymPy
- Pandas
- scikit-learn
- pytest
- Selenium
- Beautiful Soup
- sqlite3

C ————— Proficient ————— used in 2 lecture classes

- `unistd.h`
- `signal.h`
- `pthread.h`
- `sys/socket.h`
- `omp.h` (OpenMP)
- `regex.h`

JavaScript ————— Beginner ————— self taught at javascript.info, and listed as a [contributor](#)

- JSON
- Mocha
- Chai

Java ————— Proficient, but rusty ————— used extensively in 1 lecture class

- GSON
- `java.sql`
- JUnit
- Android

C++ ————— Proficient, but rusty ————— used in 3 lecture classes

Other Tools

- \LaTeX – Proficient
- Spreadsheets – Proficient
- Git – Intermediate
- HTML – Beginner

Soft Skills

Tutoring • Attention to Detail • Troubleshooting • Public Speaking • Leadership • Project Coordination

Work Experience

Head Upper Division Tutor Provo, UT
 BYU Math Lab Sep 2014 – April 2020

- Helped students on a first-come first-served basis.
- Tutored Linear Algebra, Multivariable Calculus, Differential Equations, and Mathematical Proof classes.
- Conducted weekly meetings to help our team of 10-20 upper division tutors prepare for that week’s concepts.
- Coordinated exam reviews, and often taught them. 10 to 200 students attended, depending on enrollment and subject.
- Overhauled the tutor handbook.
- Expanded the tutor application test to include a Mathematical Proof section.

Applied Math TA Provo, UT
 BYU Math Department Winter 2019

- 3 times a week I held office hours to help ACME juniors with their Optimization and Mathematical Analysis homework.
- Usually helped between 5 and 10 students.

Lube Technician Provo, UT
 Jiffy Lube Summers 2015 and 2016

- Serviced up to 50 cars each day.
- Changed oil, rotated tires, replaced brake pads, checked and filled under-hood fluids.
- Performed basic inspections for wear and tear.
- Repaired windshield rock chips.

AVID Tutor Hemet, CA
 Hemet Unified School District October 2013 – April 2014

- Worked as a tutor to students in Hemet High School’s AVID program.
- Mentored groups of 4 to 6 students in any homework assignment they needed help with.
- Helped students identify root misunderstandings of concepts, instead of rote memorization.

Private Tutor Hemet, CA
 Self Employed September 2012 – April 2014

- Tutored 6 different students individually. The students were in middle school and high school.

Gas Station Clerk

Idyllwild, CA

Idyllwild Garage

Summer 2011 and May 2012 – January 2013

- Depending on the shift, would open or close the store.
- Stocked shelves and updated inventory.
- Dispensed propane for customers with tanks.
- Serviced customers and kept the store clean.

Landscape Maintenance Crewmember

K&M Strategic Management

Hemet, CA

Summer 2011 and May 2012 – January 2013

- Leaf-blew the parking lots and picked up trash at managed medical properties every morning.
- Weeded, raked, and maintained the landscape at properties.
- Cleaned out an empty strip mall in preparation for sale.
- Repainted fences, parking lines, and breakrooms.

Projects

Math Lab Student Sign Up Analysis

Fall 2019 – Winter 2020

- Consolidated data spread across 60+ Excel files.
- Used Pandas to analyze the almost 900,000+ instances of students signing up for tutor help.
- Identified busiest times of the week, and the topics students most often came in for help with.
- Advised scheduling more tutors in the mornings based on my findings.

HTTP Proxy

Winter 2020

- C program that relayed user requests to end server, and relayed server responses to user.
- Used `regex.h` to verify that user requests met HTTP formatting requirements.
- Handled concurrent requests with a threadpool using `pthread.h` and `semaphore.h`.

DNS Stub Resolver

Winter 2020

- Program interfaced with DNS servers to look up IP addresses associated with a web domain name. For example, it would figure out that the domain name `www.example.com` is associated with IP address `93.184.216.34`.
- Formatted queries to DNS standards, sent the queries with UDP, and then decoded responses.
- Written C with `unistd.h`, `sys/socket.h`, `arpa/inet.h`, and `netinet/in.h`.

OpenMP with Mandelbrot Set

Winter 2020

- Parallelized the [Mandelbrot visualization code](#) posted on github by Andrej Bauer.

Tiny Shell

Winter 2020

- Wrote a simple shell that could handle process creation, I/O redirection and pipelines, and process control.
- Used C with `unistd.h` and `signal.h`.

Inverted Pendulum Control

Winter 2019

- Modified the Python code from the CartPole-v1 environment of OpenAI's gym library.
- Updated from Euler's method to Runge-Kutta.
- Applied an LQR control scheme to keep the pendulum upright.

Android App – Family History Map

Summer 2018

- Wrote both the client and server in Java.
- Displayed family history data with a Google MapFragment.
- Implemented activities for log-in, map interaction, life event details, and app settings.
- Wrote the SQL commands that the server would use to store and retrieve user data.