

Logan Schelly

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Work Experience

- Executive Assistant
Tanius Technology LLC
Alamo, CA
Aug 2020 – Aug 2022
- Payroll and 401(k) administration for a company of 35 people.
- Head Upper Division Tutor
BYU Math Lab
Provo, UT
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
BYU Math Department
Provo, UT
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
Jiffy Lube
Provo, UT
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 Unified School District
Hemet, CA
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
Self Employed
Hemet, CA
September 2012 – April 2014
- Tutored 6 different students individually. The students were in middle school and high school.
- Gas Station Clerk
Idyllwild Garage
Idyllwild, CA
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
Hemet, CA
K&M Strategic Management
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.

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
- Logic
- Linear Algebra
 - Solving Linear Systems
 - Matrix Algebra
 - Determinants
- Calculus of Several Variables
 - Quadric Surfaces
 - Vector Functions
- Differential Equations
 - First Order Differential Equations
 - Second Order Linear Differential Equations
 - Series Solutions of Second Order Equations
- Theory of Analysis
 - Properties of the Real Numbers
 - Sequences and Series
 - Topology of \mathbb{R}
 - Limits and Continuity of Functions
- Mathematical Analysis
 - Abstract Vector Spaces
 - Linear Transformations and Matrices
 - Inner Product Spaces
 - Spectral Theory
 - Metric Space Topology
 - Fréchet Differentiation
- Algorithm Design and Optimization
 - Measuring Algorithm Complexity
 - Data Structures
 - Combinatorial Optimization
 - Probability
 - Probabilistic Sampling and Estimation
 - Random Algorithms
 - Harmonic Analysis
- Modeling with Uncertainty and Data
 - Markov Chains
 - Classical Inference
 - Hypothesis Testing
 - Regression and Classification
 - Bayesian Analysis
 - 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
- Proof Techniques
- Relations
- Functions
- Induction
- Cardinality
- Number Theory
- Quadratic Forms
- Singular Value Decomposition
- Vector Spaces
- Eigenvectors
- Inner Product Spaces
- Partial Derivatives
- Multiple Integrals
- Laplace Transformation
- Systems of First Order Linear Equations
- Numerical Methods
- Derivatives
- Sequences and Series of Functions
- Riemann Integration
- Contraction Mappings
- Daniell-Lebesgue Integration
- Calculus on Manifolds
- Complex Analysis
- Spectral Calculus
- Iterative Methods for Linear Systems
- Polynomial Approximation and Interpolation
- Unconstrained Optimization
- Linear Optimization
- Nonlinear Constrained Optimization
- Convex Analysis and Optimization
- Dynamic Optimization
- Stochastic Dynamic Optimization
- Machine Learning
- Unsupervised Methods
- Graphical and Latent Variable Models
- Kernel Methods
- Tree-Based Methods
- 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
- BeautifulSoup
- sqlite3

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

- <code>unistd.h</code>	- <code>pthread.h</code>	- <code>omp.h</code> (OpenMP)
- <code>signal.h</code>	- <code>sys/socket.h</code>	- <code>regex.h</code>

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

- JSON	- Mocha	- Chai
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Java — Proficient, but rusty — used extensively in 1 lecture class

- GSON	- <code>java.sql</code>	- JUnit	- Android
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C++ — Proficient, but rusty — used in 3 lecture classes

Other Tools

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

Soft Skills

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

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.