# Clayton Curry

Software Engineer, Database Engineer, Research Engineer, Research Scientist

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📍 **Norman, Oklahoma**

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## EDUCATION

**University of Oklahoma**
**B.S., COMPUTER SCIENCE**
minor: Mathematics

Dept GPA: 3.28          Minor GPA: 3.50

Expected Graduation: Dec 2022

## TECHNICAL SKILLS

### General-Purpose Programming Languages

Proficient:
Python, Bash, Regex, Java, C/C++, Web Related

Familiar:
SQL, Visual Basic for Applications, R, MATLAB

### Software Engineering Tools

Proficient:
Git, Conda, ReactJS, VSCode, Eclipse, Vim

Familiar:
Slurm, Jira, Amazon Web Services, Google Cloud Platform, Chrome Developer Tools

### Machine Learning / Numerical Libraries

Proficient:
Tensorflow w/ Keras, PyTorch, Pytorch Lightning, Numpy, Pandas

Familiar:
Scikit-Learn, Tensorboard, Plotly, Matplotlib, Optuna

Theory:
Kalman Filtering for Time-Series Estimation, Gaussian Mixture Models, Hidden Markov Models, Computer Vision, Natural Language Processing, Graph Representation Learning

## SUMMARY

- Lifelong teammate mindful of the value of working to achieve common goals, rapidly prototyping ideas, and standing on the shoulders of giants in research
- Proven pattern of using software to continuously improve business and research processes, seeking the right tools to suit the problem at hand and exercising caution to avoid over-engineering solutions
- Experienced (faculty-supervised) research assistant in explainable machine learning for multi-modal data fusion (radar, video) with emphases on creating novel functionality in object tracking software

## EXPERIENCE

### RESEARCH ASSISTANT, MACHINE LEARNING IN OBJECT TRACKING
University of Oklahoma | School of Computer Science
Nov 2021 - Present

- Designed and implemented a data scraping tool in Python for extracting real-time flight data from citizen-sourced transponder messages; in one March weekend, intercepted more than 70,000,000 messages served by adsbexchange.com, stored relational data as records of a local SQLite database
- Applied numerous machine learning libraries and packages (enumerated to the left) while demonstrating modern/classical tracking algorithms, particularly the Linear/Extended Kalman Filter, Multiple Hypothesis Tracking algorithm, Convolutional Network, and Transformer Network
- Triaged literature by reading tens of abstracts every week on the Arxiv, conferences, and journals; focused on understanding approximately 1 paper per day; and (sincerely attempted to) fully replicate experiments described in 3 papers over the summer
- Conceptualized, and trained 2 machine learning algorithms to recognize the occurrence of basic flight maneuvers, approaching simulated accuracy of 90% on categories: takeoff, landing, travel, orbit
- Strategized with OU IT to provide DevOps tailored for efficient model debugging and experimentation

### LINUX SYSTEM ADMINISTRATOR ASSISTANT
University of Oklahoma | Department of Physics
Feb 2021 - Feb 2022

- Scripted various sysadmin duties/procedures using Bash and numerous Linux operating system programs for remote inventory-taking and software updates, reducing days of labor into seconds
- Developed a recursive website crawler in Python for automating quality-control procedures (checking for broken links, accessibility requirements), saving countless hours of error-prone labor

### PRESIDENT/CHAIR
University of Oklahoma | Student Chapter for the Association of Computing Machinery
Aug 2020 - Sep 2022

- Elected as treasurer, then president, for OU's student chapter of the professional society, ACM
- Presented a live introductory-level workshop to an audience of 15 computer science, physics, and math students; hand-crafted topics included command line interface, unix operating systems, version control using GitHub; all positive feedback
- Hosted weekly peer discussions and occasional professional development workshops

### BASKETBALL REFEREE / LEAD OFFICIAL
Oklahoma | Oklahoma Secondary Sports Association
Nov 2015 - Present

- Officiated more than 1,000 basketball games from elementary to high school OSSAA varsity
- Methodically enforced rules, often under strict pressure from fans, players, and coaches

## AWARDS

### OKLAHOMA ACADEMIC SCHOLAR
University of Oklahoma | OK State Regents' for Higher Education

- Earned full-ride scholarship to the University of Oklahoma by scoring 34 / 36 (cumulative) on the ACT
- English-34, Mathematics-36, Reading-32, Science-35

# OTHER EXPERIENCE

## TREASURER
Student Chapter for the Association for Women in Computing | University of Oklahoma
Mar 2021 - Apr 2022
- Jointly sponsored 4 student events, facilitated inter-club networking, oversaw payments to vendors

## RETAIL, SMALL-BUSINESS NUMBER CRUNCHER
Kief Leaf CBD | Bethany, OK
Jun 2019 - Jan 2020
- Developed and instituted a Microsoft Excel add-in  for automating weekly inventory-taking procedures and auto-generating monthly compliance reports
- Add-in developed in Excel Developer tab, written in Visual Basic for Applications

## HEAD LIFEGUARD
Reno Swim and Slide | Midwest City, OK
May 2016 - Aug 2018
- Advocated for up to 75 lifeguards, coordinating work schedules, stand rotations, and weather-related accommodations
- Greeted, assisted, and triaged the needs for (up to) 350 daily facility guests