

# Derek Chui

## Curriculum Vitae

Santa Clara University, Computer Science & Engineering, 500 El Camino Real, Santa Clara, CA 95053

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## Education

### Santa Clara University

Sep 2023 - Jun 2027

- Bachelor of Science in Computer Science and Engineering, Minor in Responsible AI
- Relevant Coursework: Data Structures, Object Oriented Programming, Probability and Statistics, Unix Scripting and Automation, Programming Languages, Information Storage

## Football Analysis Projects

### Santa Clara University Soccer

Sep 2025 - Present

- Reports with Catapult and VALD data to surface workload trends, asymmetries, and injury risks for SCU Soccer.
- Makes complex athlete monitoring data accessible so coaches can quickly spot meaningful outliers and trends.

### Player Actions v Usage Rates

Sep 2025 - Nov 2025

- Identify who is genuinely productive with the ball versus overused or underutilized players.
- Revealed efficiency driven profiles across positions to inform smarter squad building and scouting decisions.

### 2025 Summer Squad Assessment

Aug 2025 - Sep 2025

- Compare rumored and new signings against current and recently departed Wolves players.
- Highlight positional needs and quantify fit, strengths, and risk flags during the 2025 summer window.

### Progression Analysis (24/25)

Jul 2025 - Aug 2025

- High progression at Wolves is largely a byproduct of chasing games rather than effective control.
- Lower possession with more selective progression is more strongly associated with positive results.

## Network Optimization Projects

### Semantic Q Learning NOMA

Sep 2025 - Present

- Q Learning as a reinforcement learning algorithm & improved semantic model for NOMA.
- Consistent gains in network utility and scalability for future 6G wireless systems.

### Semantic Greedy NOMA

Mar 2025 - Aug 2025

- Greedy algorithm & simple semantic model for NOMA that outperforms existing baselines in network utility.
- Strong foundation later extended with reinforcement learning in [Semantic Q Learning NOMA](#).

### Pinch Antenna Assisted NOMA

Aug 2025 - Present

- Enhanced NOMA using strategically placed pinch antennas to amplify user channels based on proximity.
- Potential for scalable user grouping and improved sum rates in future 6G networks.

## Research

### Hackworth Applied Ethics Research Grant

Nov 2025

- Submission: [How AI Biases Can Silence Certain Users in 6G Mobile Communications](#)

### IEEE Consumer Communications & Networking Conference Poster

Oct 2025

- Accepted: [Semantic Utility Aware User Grouping for 6G NOMA Networks \(2 Page\)](#)

### BayLearn Machine Learning Symposium

Sep 2025

- Submission: [Semantic Aware User Pairing for 6G NOMA Networks](#)

### IEEE Consumer Communications & Networking Conference

Aug 2025

- Submission: [Semantic Utility Aware User Grouping for 6G NOMA Networks](#)

### 2FURS (Faculty-mentored Undergraduate Research) Grant

Apr 2025

# Experience

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## **Research Assistant**

*Santa Clara University*

- Wireless Intelligent Networks and efficient user clustering in NOMA 6G networks.

Apr 2025 - Present

*Internship | Hybrid*

## **Teaching Assistant**

*Santa Clara University*

- CSEN 171 Programming Languages, made assignments & autograders, led practicums & hosted office hours.

Sep 2025 - Dec 2025

*Part-time | Hybrid*

## **Sales Development Representative**

*ProofJump*

- Connected with professionals in the SaaS, B2B, and SDR industries through LinkedIn Sales Navigator. Planned and automated outreach emails to specific audiences. Set up routines for both outbound & inbound communication.

Jul 2024 - Aug 2025

*Part-time | Remote*

## **Training Specialist**

*Honeywell*

- Made training videos on Honeywell XLS fire alarm devices, helped plan courses, worked on site at various apartment buildings. Supported instructors during training. Training in Honeywell Building Automation Systems.

Jul 2024 - Nov 2024

*Part-time | On-site*

## **Video Editor**

*Freelance*

- Edited video content for clients. Final Cut Pro for tasks like cutting, color grading, audio editing, and visual effects. Organized file management for raw footage, project files, and final exports. Motion graphics and animations.

Feb 2021 - Jul 2023

*Remote*

## **Content Creator**

*Self-Employed*

- YouTube content on gaming, lifestyle, tech, original video essays, montage segments, and more. Hosted a podcast with discussions and interviews. Blogs with written content and in depth articles, later compiled into a short book.

Dec 2015 - Feb 2021

*Remote*

# Projects

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## **Football Analytics**

- Collection of Python projects. Data analysis, visualisation and web scraping.

Jul 2025 - Present

## **Network Optimization**

- Semantic utility driven NOMA networks & reinforcement learning.

Mar 2025 - Present

## **Personal Website**

- Done with Netlify and Astro frameworks.

Mar 2025 - Jun 2025

## **Benchmark**

- Learning the basics of different languages.

Jun 2024 - Mar 2025

## **Fantasy Premier League**

- Game in C++ to simulate team drafting and weekly matchups.

Jan 2025 - Mar 2025

## **Phonebook**

- Multi threaded phonebook application in C for storing and retrieving contacts.

Sep 2023 - Nov 2023

## **Word Gravity**

- Interactive typing game in JavaScript where players type letters before they reach the bottom.

Jan 2022 - May 2022

# Skills

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**Programming:** C, C++, Java, Data Structures & Algorithms, MATLAB

**Data Analysis:** Python, Excel, Web Scraping, NumPy, Pandas, Matplotlib, Seaborn

**Web Dev:** HTML, JavaScript, CSS, Netlify, Astro

**Software:** Final Cut Pro, Microsoft Visual Studio Code, Jupyter Notebooks, LinkedIn Sales Navigator, Git, GitHub

**General:** Lead Generation, Building Automation Systems (BAS), LaTeX

## References

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### **Krishna Ramamoorthy**

- Position: Assistant Professor of Computer Science and Engineering
- Employer: Santa Clara University
- Context: [Network optimization projects, research, research assistant](#), teaching assistant
- Email: [lkattiyanramamoorthy@scu.edu](mailto:lkattiyanramamoorthy@scu.edu)

### **Jacob Roy**

- Position: Assistant Athletics Director, Sports Performance
- Employer: Santa Clara University
- Context: Worked with in my [Santa Clara University Soccer project](#)
- Email: [jroy@scu.edu](mailto:jroy@scu.edu)

### **Justin Khoo**

- Position: Founder
- Employer: [ProofJump](#)
- Context: Worked for at [ProofJump](#)
- Email: [justin.khoo@gmail.com](mailto:justin.khoo@gmail.com)