

Derek Chui

Curriculum Vitae

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

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LinkedIn: linkedin.com/in/derek-chui | GitHub: github.com/derek-chui | U.S. Citizen

Education

Santa Clara University

Sep 2023 - Jun 2027

- Bachelor of Science in Computer Science and Engineering, Minor in Responsible Artificial Intelligence
- Relevant Coursework: Data Structures, Discrete Mathematics, Linear Algebra, Object Oriented Programming, Probability and Statistics, Unix Scripting and Automation, Programming Languages, Information Storage

Football Analytics Projects

Santa Clara University Soccer

Sep 2025 - Present

- 50+ Catapult & VALD metrics, 100+ report pages, 50+ D1 athletes, Python, NumPy, Pandas, Matplotlib.
- Automated pipeline reveals workload trends, asymmetries, injury risks, coaches can spot meaningful outliers.

Player Actions v Usage Rates

Sep 2025 - Nov 2025

- 300k+ views on X in 10 days via posts with efficiency profiles across positions to inform smarter squad building.
- Analysed 50+ Premier League players, correlated player productivity, revealing misused or underutilized players.

2025 Summer Squad Assessment

Aug 2025 - Sep 2025

- Processed, cleaned, compared over 50 rumored and new signings against current & recently departed players.
- Reported insights on positional needs & quantify fit, strengths, and risk flags during the 2025 summer window.

Progression Analysis (24/25)

Jul 2025 - Aug 2025

- Evaluated progression (passes, carries, receptions) over 42 games across a Premier League team's 24/25 season.
- For bottom half teams, selective progression with lower possession correlates with positive results, and vice versa.

Network Optimization Projects

Semantic Q Learning NOMA

Sep 2025 - Present

- Implemented a Reinforcement Learning (RL) algorithm via 1000+ episodes, realistic semantic NOMA model.
- Within 5% of optimal network utility even with scalability for future 6G wireless systems and ethical implications.

Semantic Greedy NOMA

Mar 2025 - Aug 2025

- Greedy algorithm and semantic model for NOMA that outperforms existing baselines in network utility by 25%.
- Strong visualizations & metrics extended to data driven optimization workflow in Semantic Q Learning NOMA.

Pinch Antenna Assisted NOMA

Aug 2025 - Present

- Simulated enhanced NOMA using pinch antennas to amplify user channels based on proximity over 500 trials.
- Improved sum rates by 15%, 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

Research Assistant <i>Santa Clara University</i>	Apr 2025 - Present Internship Hybrid
• Work in Wireless Intelligent Networks (WIN), Reinforcement Learning (RL) models for 6G wireless systems. • Analysed 25+ papers, implemented 20+ simulations , and compiled into over 10 submissions to various venues.	
Teaching Assistant <i>Santa Clara University</i>	Sep 2025 - Dec 2025 Part-time Hybrid
• Facilitated lectures, led practicums, and office hours for 61 students in programming paradigms (CSEN 171). • Developed assignments and autograders , increased scores by 5% via detailed instructions and feedback response.	
Sales Development Representative <i>ProofJump</i>	Jul 2024 - Apr 2025 Part-time Remote
• Connected with 100+ professionals in the SaaS, B2B , and SDR industries through LinkedIn Sales Navigator. • Automated 100+ outreach emails to specific audiences and set up inbound & outbound routines.	
Training Specialist <i>Honeywell</i>	Jul 2024 - Nov 2024 Part-time On-site
• 10+ training videos on Honeywell XLS fire alarms, planned courses, worked on site at various apartment buildings. • Assisted instructors during training with 50+ students over 15 weeks, Honeywell Building Automation Systems.	
Video Editor <i>Freelance</i>	Feb 2021 - Jul 2024 Remote
• Managed 70 video projects over 3 years for clients with Final Cut Pro under fluid deadlines in an efficient manner. • Organized & detail oriented file management for footage, project folders, exports, focused on quality & consistency.	
Content Creator <i>Self-Employed</i>	Dec 2015 - Feb 2021 Remote
• 170 YouTube content over 5 years on gaming, lifestyle, tech, video essays, montage segments, and more. • Hosted a podcast with 22 discussions and interviews, blogs with in 30 depth articles, compiled into a short book.	

Projects

Football Analytics	Jul 2025 - Present
• 50+ reports , player dashboards , match reviews via Python, Excel, NumPy, Pandas, Matplotlib, Seaborn . • Reported 100+ visualizations with over 150 metrics across 100+ players . 500k+ total impressions on X.	
Network Optimization	Mar 2025 - Present
• Developed semantic optimization methods for 6G NOMA wireless systems, Reinforcement Learning (RL) . • Modular simulation pipelines, up to 25% gains over baselines, near optimal utilities, over 1000+ episodes & trials.	
Personal Website	Mar 2025 - Jun 2025
• Done with Netlify frameworks, Astro, TypeScript, CSS, and JavaScript , averaging 2000+ requests per week.	
Benchmark	Jun 2024 - Mar 2025
• Basics of 12 different languages and concepts including C, C++, Java, Python, HTML, CSS, and Javascript .	
Fantasy Premier League	Jan 2025 - Mar 2025
• Game in C++ to simulate team drafting and weekly matchups with 50+ players over 10 gameweeks.	
Phonebook	Sep 2023 - Nov 2023
• Multi threaded phonebook application in C for storing and retrieving 100+ contacts done over 10 weeks.	
Word Gravity	Jan 2022 - May 2022
• Interactive typing game in JavaScript , players type letters before they reach the bottom with 100+ unique levels.	

Technical Skills

Data Analysis: Python, Excel, NumPy, Pandas, Matplotlib, Seaborn

General: C, C++, Java, Data Structures & Algorithms, MATLAB, HTML, JavaScript, CSS, Netlify, Astro

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

Miscellaneous: Lead Generation, Building Automation Systems (BAS), LaTeX

References

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

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

Justin Khoo

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