

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 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

Matchday for Hudl Wyscout

Jan 2025 - Present

- **Hudl Wyscout** compatible **reporting app**, **100+** aggregates, athlete **dashboards**, match review PDFs, **KPIs**.
- **100+** scout **metrics**, supports match, season review, player evaluation, opposition **analysis**, talent identification.

Player Performance Outliers

Sep 2025 - Present

- **100+** **Catapult**, **VALD**, Output **KPIs**, **100+** **report** pages, **NCAA D1**, **Python**, **NumPy**, **Pandas**, **Matplotlib**.
- **Automated pipeline**, workload trends, injury risks, outliers, **Q-learning (ML)** & **XGBoost** advises next steps.

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

- **Collected** progression (passes, carries, receptions) over **42** games across a Premier League team's 24/25 season.
- **Visualizations** show lower progression correlates with positive results for bottom half teams, and vice versa.

Network Optimization Projects

Semantic Q Learning NOMA

Sep 2025 - Present

- **Built & maintained** a **Machine Learning (ML)** algorithm, **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, semantic model, beats **monitored** baselines implemented from other research papers 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

IEEE Wireless Communications and Networking Conference

Jan 2026

- Submission: Semantic-Aware Learning-Based NOMA User Grouping for Programmable 6G RANs

Helene Lafrance Library Undergraduate Research Award

Jan 2026

- Submission: Semantic-Aware NOMA with Hybrid Rate Modeling and Q-Learning based User Grouping

SCU School of Engineering Research Showcase

Jan 2026

- Submission: Semantic Aware User Grouping for 6G NOMA Networks using Q-Learning

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
• Awarded in undergraduate research funding	

Experience

Research Assistant	Apr 2025 - Present
<i>Santa Clara University</i>	<i>Internship Hybrid</i>
• 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 related venues.	
Teaching Assistant	Sep 2025 - Dec 2025
<i>Santa Clara University</i>	<i>Part-time Hybrid</i>
• Facilitated lectures, led practicums, and office hours for 61 students in programming paradigms (CSEN 171).	
• Developed assignments and autograders, database visualizations and analysis reveals increased scores by 5% .	
Sales Development Representative	Jul 2024 - Apr 2025
ProofJump	<i>Part-time Remote</i>
• 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	Jul 2024 - Nov 2024
<i>Honeywell</i>	<i>Part-time On-site</i>
• 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	Feb 2021 - Jul 2024
<i>Freelance</i>	<i>Remote</i>
• 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	Dec 2015 - Feb 2021
<i>Self-Employed</i>	<i>Remote</i>
• 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 30 in 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, in 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: Hudl, Catapult, Python, Excel, NumPy, Pandas, Matplotlib, Seaborn, ML, RL

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: kkattiyanramamoorthy@scu.edu

Jacob Roy

- Position: Assistant Athletics Director, Sports Performance
- Employer: Santa Clara University
- Context: Worked with in creating [Matchday for Hudl Wyscout](#) and [Player Performance Outliers](#)
- Email: jroy@scu.edu

Justin Khoo

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