# Armon Barakchi

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## EDUCATION

**University of California San Diego**
Bachelor of Science in Electrical Engineering — September 2021 – June 2025

- Concentration: Machine Learning and Controls
- GPA: 3.87, Major GPA: 3.95
- Awards: Scholarship, Triton Research and Experiential Learning Scholars (TRELS)

## WORK EXPERIENCE

**The Boeing Company**
Electrical Design and Analysis Engineer — June 2024 – September 2024

- Led critical design testing and assisted in the development of a fiber optic test kit for United States Air Force bases, ensuring high reliability and precision in critical cockpit support systems
- Deployed a diagnostics tool using Python to decode mission-critical data on C-17 aircraft, resulting in the identification and ongoing prevention of recurring issues
- Designed and developed project management solutions by coding an internal web application, utilizing Python, SQL, and React.js, allowing managers to track projects more efficiently, resulting in improved team efficiency.

**Ongkeko Bioinformatics Lab**
Researcher — December 2021 – June 2023

- Conducted extensive data analysis and interpretation of high throughputs sequencing data (RNA-seq, WGS) to investigate genomic alterations associated with oncogenesis and clinical outcome
- Developed custom R scripts and pipelines for automating data analysis workflows
- Mentored junior lab members to familiarize them with various analyses (Kruskal-Wallis, Cox Regression, etc.)

## PROJECTS

**Robotic Arm with Inverse Kinematics**
Lead Systems Engineer — November 2024 – February 2025

- Designed and fabricated a 6-DOF robotic arm using high-torque servo motors, achieving sub-centimeter accuracy
- Defined system architecture and functional requirements for joint actuation, sensor interfacing, and performance
- Developed and validated C++ inverse kinematic algorithms to convert cartesian goals into joint commands
- Implemented firmware on Arduino to coordinate motor control, trajectory planning, and real-time feedback handling

**LineBot – Line Following Racecar**
Design Engineer — April 2023 – June 2023

- Achieved first place in two events and second place in another at competitive robotics competitions
- Demonstrated proficiency in sensor calibration, data interpretation, and PID controllers by integrating infrared sensors with the Arduino microcontroller, resulting in accurate detection of “black line path”
- Developed a real-time control algorithm that utilized sensor feedback to adjust motor speeds and steering movements with precision and consistency

## SKILLS

- **Softwares:** Python, C/C++/C#, R, SQL, MATLAB, JavaScript, HTML, CSS, ARM, SolidWorks, Microsoft Office, LTSpice, Pspice, GitHub/Git, EAGLE, OrCAD
- **Hardware:** Circuit Testing (oscilloscope, multimeter, function generator), Arduino/Raspberry Pi Prototyping, Fiber Optic Technology, Analog Circuits, Digital Circuits, PID controllers, Soldering, RF circuits

## PUBLICATIONS

**Barakchi, A.**, et al. (2022). Effects of Human Papilloma Virus E6/E7 Oncoproteins on Genomic Structure in Head and Neck Squamous Cell Carcinoma. *Cancers, 14*(24), 6190. doi:10.3390/cancers14246190

**Barakchi, A.**, et al. (2023). Transcriptomic Analysis Reveals Dysregulation of the Mycobiome and Archaeome and Distinct Oncogenic Characteristics according to Subtype and Gender in Papillary Thyroid Carcinoma. *International Journal of Molecular Sciences, 24*(4), 3148; doi:10.3390/ijms24043148