

# SELIM EMIR CAN

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☎ +1(607) 542-6032 📍 Los Angeles, CA

## EDUCATION

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**BS in Electrical Engineering** — University of California, Los Angeles September 2020 - June 2024

Cumulative GPA: 3.92/4.00 (*cum laude*), Major GPA: 3.98/4.00

**Selected Coursework:** Computer Vision(A+), Machine Learning(A), Probability and Statistics(A+), Photonics(A+), Applied Numerical Computing(A), Signal Processing(A), Circuit Theory(A+)

## RESEARCH INTERESTS

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My research interests lie in **computational imaging** and **computer vision**. I want to explore its applications in medical imaging, AR/VR technology, remote sensing, and robotics. My current research work focuses on improving neural networks through uncertainty quantification and virtual staining of unlabeled tissue images via deep learning.

## PUBLICATIONS

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**Thermal Imaging and Radar for Remote Sleep Monitoring of Breathing and Apnea** *In submission*

• K. Del Regno, A. Vilesov, A. Arouti, A.B. Harish, **S.E. Can**, A. Kita, A. Kadambi [\[arXiv\]](#)[Project Page](#)

**Uncertainty-Aware Models for Fast Video Depth Estimation** *Under preparation*

• TBD

**Uncertainty Quantification in Vision, Learning and Robotics** *Under preparation*

• TBD

## PRESENTATIONS AND PATENTS

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**Blending Camera and 77 GHz Radar Sensing for Equitable, Robust Plethysmography** October 2023

• Selim Emir Can, Jim Solomon, Achuta Kadambi *Amazon-UCLA Science Hub Fall Showcase in Lusk*

**Enabling Diverse Eye Anatomy Tracking** September 2023

• Selim Emir Can *UCLA Summer Undergraduate Research Program Poster Symposium*

**Enabling Diverse Eye Anatomy Tracking** September 2023

• Selim Emir Can *UCLA Summer Programs for Undergraduate Research (SPUR) Research Showcase*

**Methods and Apparatus to Detect and Classify Forms of Sleep Apnea (UCLA Case no. 2024-253-1)**

Filed May 29th, 2024

• K. Del Regno, A. Vilesov, A. Arouti, A.B. Harish, **S.E. Can**, A. Kita, A. Kadambi

## RESEARCH EXPERIENCE

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**Visual Machines Group** October 2022 - Present

Undergraduate Research Assistant *Los Angeles, CA*

- Proposed an uncertainty-aware formulation for fast video depth estimation, utilizing a lightweight adapter and uncertainty-aware temporal aggregation.
- Proposed an anomaly detection algorithm using signal processing techniques for real-time non-contact sleep apnea detection via radar sensing and thermal imaging. Achieved 99% accuracy, 74% recall, and 68% precision on 21 hours of data.
- Implemented a compositional image generation framework that manipulates cross-attention layers in diffusion models, utilizing positional embeddings to enhance spatial relationships and object-specific attributes.
- Developed a fusion-based eye-tracking algorithm with 0.86° gaze accuracy (baseline: 2.00°) and a data synchronization codebase for Virtual Reality headsets.

- Independently built a procedural, anatomically accurate eye/skin model based on clinical research parameters for synthetic eye-tracking data generation.
- Applied adaptive filtering to reduce the effect of motion artifact in pulse oximeter blood-oxygen saturation measurements. Designed and 3D printed a pulse-oximetry hardware.

### Ozcan Research Lab

August 2024 - Present

Undergraduate Research Assistant

Los Angeles, CA

- Proposed a multi-stage image registration pipeline leveraging advanced computing techniques to improve upon the standard yet costly and tedious tissue preparation protocols in auto-fluorescence microscopy.
- Trained SOTA diffusion models for image-to-image translation, utilizing a simple 3DCNN encoder to account for 3D-deformations via extended field of depth.

### Robotics and Mechanisms Laboratory (RoMeLa)

March 2022 - October 2022

YORI Team (Cooking Robot Project)

Los Angeles, CA

- Designed and 3D-printed a [modular gas sensor shell](#) that stores a Raspberry Pi Zero 2W and 17 gas sensors to identify chemical signatures (volatile organic compounds, temperature, humidity) humans perceive as "smells".

## SKILLS

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**Mechanical** CAD (Solidworks, Fusion 360), 3-D Printing

**Software** Python (PyTorch, Tensorflow), MATLAB, C/C++, Git, Blender, UnityVR

**Electrical** PCB Design, Soldering & Wiring, Microcontrollers

## AWARDS AND HONORS

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UCLA Summer Undergraduate Research Program Stipend ~ 7000\$ 2023

UCLA Harley L. Wood Family Scholarship ~ 7000\$ 2023

UCLA Dean's Honor List for superior academic achievement 2024, 2023, 2022, 2021

Clifton and Priscilla Smith Scholarship (New York) ~ 3000\$ 2020

Parent Teacher Student Association Scholarship (New York) ~ 500\$ 2020

## WORK EXPERIENCE

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### Corning Inc.

August 2019 - October 2019

Summer Research Intern

Painted-Post, NY

- Fused different variants of composite material (SiC, Zr, NaOH) to make new cement plug compositions. Tested the strength of composite materials (ceramic pellets).
- Analyzed the microstructure of cement plugs using a scanning electron microscope (SEM), and performed strength tests on ceramic castings.
- Orally presented my findings to mentors from the Materials Science R&D Department to conclude my research and received a \$500 award for the best research presentation.

## EXTRA-CURRICULAR ACTIVITIES

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### Eta Kappa Nu (HKN) - Historian (Executive Board)

- Provided free tutoring services and hosted exam review sessions for upper-division circuits courses.
- Reported and maintained a historical record of events and meetings to IEEE HKN HQ to secure funding.

### Turkish Bruins @ UCLA - Member

- Organized a philanthropy concert in collaboration with Sigma Pi @ UCLA, raising \$400 for Syria-Turkey earthquake relief following the February 6, 2023 earthquake.