# Tamir Shem Tov

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## Research Experience

**Spring 2025 OSCAR Scholarship Program** (Ongoing)

- A scholarship for engaging in out of classroom research with a faculty mentor throughout the semester
- The paper will be presented at the 39th Annual CSU Statewide Student Research Competition and is currently being reviewed for the CSU Undergraduates Conference
- Expanding my previous work, this research improves neural network interpretability by embedding low level features such as neurons and units. By analyzing these embeddings, we found redundant components and applied structured pruning to optimize the model. Our approach proved to prune neurons and units while preserving accuracy, outperforming random pruning method

## Work Experience

**Software Developer Intern -** CC Investment Properties LLC **June 2024 - August 2024**

- Made a desktop app that increases efficiency of various daily tasks like automated cost reports, managing tenants, maintenance requests, payment tracking, and automated applicant screening
- The app is built with PyWebView for the GUI, Flask for backend, and MongoDB for storage

## Projects

**Write-It: A Web App for Microsoft Developers AI Learning Hackathon**

- Similar to Duolingo but for writing exercises, Write-It lets users choose from three prompt categories: normal, challenge, and creative. The web app uses Azure OpenAI LLMs to generate unique prompts, evaluate user submissions, and manage toxicity checks for inappropriate content
- Created a RAG system with MongoDB vector search and Azure OpenAI similarity checks, using chain of thought reasoning to validate or generate new prompts and prevent duplicates
- Deployed to Azure with Docker, using resource groups for container apps and Cosmos DB

**Insightify: A Sentiment Analysis Tool for Customer Support**

- Insightify is a web application for sentiment analysis and spam detection, built with Spring Boot and MongoDB, using DistilBERT to analyze and store customer feedback data
- Fine-tuned two models from Hugging Face's Transformers library to improve the performance of sentiment analysis and spam detection task, resulting in a 2% improvement for both models

**Shoe Brand and Model Classification with Convolutional Neural Network**

- Worked in a team of two to create a PyTorch CNN model for classifying 10 shoe brands with 45 models, reaching 93% brand accuracy and 76% model accuracy
- Model processes real-world shoe images by using rembg for background removal, placing them in a bounding rectangle, cropping to fit, and resizing with padding to a standardized 190x100 resolution

## Education

**California State University, East Bay**
**Bachelor of Science in Computer Science** - Expected December, 2025 | **GPA**: 4.0
**Relevant Courses:** Software Engineering, Data Structures & Algorithms, Artificial Intelligence
**Upcoming(Spring 2025) Courses:** Natural Language Processing, Analysis of Algorithms

## Technical Skills

**Programming Languages:** Python, C++, C, Java, SQL, HTML, CSS, SAS
**Technologies/Tools:** PyTorch, NLTK, LLMs, Scikit-learn, Pandas, Git/Github, Flask, Linux, Jupyter Notebook, RESTful API, AWS, Docker, Azure, MongoDB, NumPy, Object Oriented Programming, Matplotlib