Ammar Husain

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Experienced software engineer, tinkerer and technology lead with deep expertise in general AI/ML. I thrive in roles that involve state of the art AI and are at the intersection of applied research with a strong product focus.

APPLE - Cupertino, CA

AIML - ISPG

Staff Machine Learning Engineer : June 2023 - Current

- Building new products with a focus on applied AI and leveraging state of the art generative multimodal models (LLMs & VLMs). Deploying smaller models on-device to build delightful customer experiences. Created several prototypes with the Llama and Mixtral family of models with size <50B parameters and llama.cpp for efficient inference.

GOOGLE - Mountain View, CA

EVERYDAY ROBOT PROJECT

Technology and Product Lead : Humans-in-the-loop, Navigation Perception : Jan 2019 - May 2023
- Leveraged state of the art open vocabulary detectors, fine tuned VLM models, image and 3d segmentation models to build a highly performant multi modal perception system to navigate in various Google buildings. Explored Language x Actions as a mode for human instruction leveraging LLMs for high level reasoning and task planning.
- Drove the execution, implementation & deployment of AutoLook, a machine learned feature that enables the robot to actively perceive the environment via moving its head to explore areas of interest.
- Single handedly drove, from conception to production, a framework for triaging field issues by robot operators. This enabled massively scaling operations and has grown into a self-sustained & growing team of ~10 people, analyzing ~500 reported issues per day.
- Filed 7 patents around automated data collection and active robot perception

MARBLE - San Francisco, CA

Perception Lead, Founding Software Engineer : June 2017 - November 2018

- Led the overall design & architecture of the robot perception system.
- Drafted feature lists & product roadmaps and managed work of several SWEs.

APPLE - Cupertino, CA

AUTONOMOUS SYSTEMS (PROJECT TITAN): Senior Software Engineer: Jan 2015 - June 2017

- Given the nature of the project, most of my specific work at Apple is highly confidential. Broadly developed machine learning models and fundamental software algorithms for vehicle perception.

ROBOTICS INSTITUTE, CARNEGIE MELLON UNIVERSITY - Pittsburgh, PA

Software Engineer : Jan 2013 - Dec 2014

- **Perceptual Boosting:** Developed algorithms to correlate vehicle slip behavior with perceptual cues and provided enormous benefits in path planning for autonomous vehicles.

Past Internships:

BANK OF AMERICA (MERRILL LYNCH) - Software Engineer - Chicago, IL

GENERAL ELECTRIC (HEALTHCARE) - Software Engineer - Barrington, IL

CATERPILLAR INC - Software Test Engineer - Urbana, IL

AMERICA READS PROGRAM - Math Tutor - Urbana, IL

EDUCATION

CARNEGIE MELLON UNIVERSITY - Pittsburgh, PA

MS in Robotics Systems Development - Topic: Artificial Intelligence : MAY 2013

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN - Champaign, IL

BS in General Engineering - Robotics (Honors) : MAY 2011

PRINCESS SUMAYA UNIVERSITY OF TECHNOLOGY - Amman, JORDAN

Undergraduate Exchange Program : SUMMER 2008

CONTINUOUS EDUCATION COURSEWORK

Stanford - Artificial Intelligence Professional Program
Natural Language Processing with Deep Learning : *XCS224N* ; Natural Language Understanding : *XCS224U* ; Machine Learning : *XCS229* ; Reinforcement Learning : *XCS234*

Stanford - Product Management Professional Program
Product Management: Transforming Opportunities into Great Products - *XPROD110*; Mastering Product Management: Building Your Strategy - *XPROD210*; User Research: Informing Product Decisions with Customer Insights - *XPROD115;* Product Costing: Understanding the Financials of Your Product - *XPROD120*

PADI Rescue Diver & Emergency First Responder

SKILLS & FUN PROJECTS

Technical: Python, PyTorch, C++, C, Swift, MATLAB, Linux, Git, Emacs, Obsidian
SECOND BRAIN SEARCH : Demo, Code, Notes : May 2023
- Created a search engine for my publicly shared notes (notes.ammarh.io) by using the OpenAI embedding API along with a RAG system (Milvus vector DB) and GPT-4 for answer summarization as well as web links to relevant notes. Built with Streamlit + Obsidian + Heroku.

CHATBOT : Demo, Code, Blog : Jun 2022
- Exported Gmail chat history to create a fine-tuning dataset for GPT-3. Created with Flask a chat like interface (pre ChatGPT) for prompt completions by maintaining conversation history for this fine-tuned model.