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Axel Wickman

Systems development
Cognitive science

Summary

I am a generalist programmer with an intrinsic passion for systems design and working in teams. At 14 I discovered Python programming through the Blender Game Engine - using it to explore my fascination with AI through evolutionary algorithms. My practical experience has through the years expanded continually with frameworks, languages, and methods ranging from full-stack development to applied machine learning. This practical knowledge is backed up by an interdisciplinary education covering machine intelligence and human psychology.

I am quick to build understandings of codebases, and will often fall into managing roles in teams where there is a need to find a shared vision, delegate tasks, and get to working solutions. I will help you effectively navigate the space between abstract ideas and concrete implementations.

Skills

Core skills	Areas	Technolgies		
Leadership	OOP, DDD	Azure Cloud	OpenAPI	LaTeX
Initative	Agile development	Serverless	WebRTC	WebAssembly
Situational awareness	Fullstack	React (+ native)	CosmosDB	Expo
Problem solving	Machine learning	PyTorch	RL	Android Studio
	Low level	C++	D3	Selenium
	Linux	Python	ROS 2	Jest
		OpenGL	Blender	Posix IPC
		Docker	Nginx	Pipelines
			3D printing	Unity3D
			OWASP	OAuth2
				GCP

Experience

Dyno Robotics

Robotics Developer Stockholm, Sweden :: Aug 2022 → Present
Consultant role with focus on applied robotics.

Omegapoint

Software engineering consultant Stockholm, Sweden :: Aug 2021 → Jun 2022
Participated the Academy Professional trainee program which aimed at making me a full-stack developer with a focus on Cyber Security. This program mainly consisted of customer work, but also included courses in agile development, domain-driven design, and customer interaction.
- Worked in a full-stack team implementing administrative systems using Typescript (TS) and Azure Functions using no-trust principles.
- Singlehandedly made and deployed a cross-platform app for checking Cyanobacteria levels, using Expo, TS, React Native and Neumorphic design.
- Designed and implemented an internal tool for simulating project profitability using a flexible logical rules-based engine. Visualized in frontend using React and D3.
- Implementing in-app payment solutions for video streaming in Java.

Dyno Robotics for Saab Aeronautics

Candidate thesis Linköping, Sweden :: Jan 2021 → Aug 2021
Exploring feasibility of reinforcement learning flight route planning (2021)
Together with partner explored methods for planning flight routes in virtual 3D environments in hostile environments. We evaluated the ability of classical pathfinding against various reinforcement learning algorithms to find safe routes through the world towards goals.
- Implemented OpenGL renderer, world generator and aerodynamic simulation.
- 12,000+ lines of C++ with massive CPU multi-threading in synergy with GPU
- Own implementations of DQN, NAF, and PPO in LibTorch and TorchScript.

Wolfram Mathcore

Modelica & C++ Developer Linköping, Sweden :: Jun 2020 → Aug 2020

Developed first version of a plug-in for Wolfram SystemModeler which enabled communication with Robot Operating System (ROS), enabling control real world devices and other ROS-enabled environments.

- C++ with cross-platform Interprocess Communication achieved using Boost.
- Demo of balancing pendulum controller with Q-table implemented in Python.

Experience

LiU@ HomeWreckers FIA Linköping University

Project lead Linköping, Sweden :: Dec 2019 → May 2021

Service robotics project for humanoid robot Pepper. Was responsible for person detection first year, and became project manager for the 7-person group in autumn 2020. This brought with it challenges of leadership, team motivation, system architecture, and sub-system integration. In July 2019, we competed at RoboCup in Sydney, Australia.

- Person detection using DensePose, input sanitation through ConvNets, and tracker with Kalman filter. Classification and autoencoders were investigated.
- As lead, achieved more modularity, understandability, and faster onboarding times through deep restructuring of legacy code base, by upgrading to ROS2, and by containerizing environments using Docker Compose.

Education

Linköping University

Cognitive Science (Candidate 180hp) Linköping, Sweden :: Aug 2017 → Jun 2021

An interdisciplinary program that outlines both the philosophical and empirical aspects of human thought and emotion. The main specializations are scientific methods, UX design, and AI.

- General AI course. Classical and neural nets. Project in simulated evolution.
- Language technology. Project in own temporal t-SNE applied on Reddit data.
- Cognitive neuroscience, and cognitive and engineering psychology.

Escola Politécnica da USP

Polytechnic exchange studies São Paulo, Brazil :: Aug 2019 → Dec 2019

Studies abroad for academic and cultural exchange. Courses were in Portuguese.

- AI course treating mathematical fundamentals and Prolog programming.
- Data science methods. Project in stock prediction using supervised learning.
- Virtual Reality course with game development in Unity3D.

Polhemsskolan

Technology program Gävle, Sweden :: Aug 2014 → Jun 2017

Specialized in IT. Classes up to levels of Mathematics 5 and Physics 2.

- Received a scholarship from Tekniska Föreningen Gävle for project simulating and visualizing synaptic STDP-learning in spiking neural networks.

Languages

Swedish	Native speaker
English	Fluent, C2
Portuguese BR	Pre-Intermediate, B1

Other qualifications

Drivers license	Swedish Type B
TV segment	Animated a robot dance routine for a segment in the SVT show Svenska Nyheter