



Amir Farhadi (B.Eng. ICT)

Software Engineer | Systems Architecture, CI/CD & Speech OS

- Finnish & U.S. Dual Citizen • Immediate Availability (Turku / Hybrid / Remote)
- Strong background in systems architecture, CI/CD security, C# (.NET 10), and 27-month Speech OS engineering
- Open-Source Collaborator on dictation-toolbox/Caster; published tools on Tiny Tool Town

SYSTEMS ARCHITECTURE, SPEECH OS & CI/CD

Maritime HSE Intelligence Pipeline — Lead Systems Architect & AI Engineer

09/2026 – Present

- Architected enterprise 3-agent safety intelligence pipeline in C# (.NET 10) and Python with Azure AI Search hybrid RAG over 182 ISO 45001 SOP chunks; engineered schema-driven ClosedXML spreadsheet engine preserving locked formulas (OSHA TRIR, LTIFR, Finnish TR-mittaus) across 25 subcontractor tabs.

Active Desktop Context Engine (ADCE) — Lead Developer

07/2026 – Present

- Architected C# (.NET 10) Windows daemon & MCP server with GitHub Actions CI/CD pipeline enforcing release builds, xUnit architectural integrity assertions, and Python security/path audits; Win32 gating (< 0.5 ms).
- Engineered lock-free L1 atomic cache (< 15 ns), asynchronous SQLite WAL L2 time-series store on STA message pump, and ContextPrivacySanitizer to redact passwords, private keys (.env, .pem), and OAuth tokens.

Caster Voice OS (Hands-Free Platform) — Architect (27 Mo.)

05/2024 – Present

- Engineered 27-month, 969-commit personal voice computing OS; built 3-tier Win32 focus engine (AttachThreadInput), Kaldi ASR engine patches, Olympus RS31H foot pedal bridge (AutoHotkey v2 / XML-RPC IPC), and 40+ CCR grammars.

Autonomous Multi-Agent Platform — Cloud Architect

05/2026 – 06/2026

- Engineered autonomous 3-agent intelligence platform using Azure Functions, Storage Queues, and Azure OpenAI alongside containerized Gemini SDK / Azure Speech MCP server and real-time Python telemetry dashboard.

OPEN-SOURCE CONTRIBUTIONS & UPSTREAM PRS

Caster Framework (Merged Pull Requests)

05/2026 – 08/2026

- [PR #975](#) (Numeric Engine Refactor): Rebuilt number grammar rules using NumberRef, eliminating the legacy 4-digit dictation ceiling to support arbitrary multi-digit spoken numbers.
- [PR #965](#) (HUD Startup Sync): Added thread polling and retry logic to resolve thread initialization race conditions during Caster GUI HUD startup.
- [PR #962](#) (Parser Corrections) and [PR #960](#) (Windows 11 virtual desktop navigation).

Dragonfly & PyVDA (Open Pull Requests)

06/2026 – Present

- [Dragonfly PR #409](#) (Number Series): Resolved greedy matching conflicts in Dragonfly's core Number grammar, removing arbitrary length bounds and preserving leading zeros.
- [Dragonfly PR #408](#) (Kaldi Deferred Reload Race): Fixed fatal KaldiError crashes during deferred grammar reloads by capturing stale rules scheduled for destruction.
- [PyVDA PR #57](#) (Stale COM & RPC Handling): Intercepted 0x800706BA RPC errors on Explorer restarts to automatically rebind IVirtualDesktopManager.

PUBLISHED TOOLS & DESKTOP AUTOMATION

WinStasis & vdtree — CLI Utilities & Automation

2026

- [WinStasis](#) (Tiny Tool Town): Standalone C# .NET CLI tool to snapshot and restore window coordinates, dimensions, and virtual desktop assignments following display disconnects or sleep cycles.
- [vdtree](#) (Tiny Tool Town): Standalone C# .NET CLI tool mapping out active virtual desktops and open application HWND windows in a clean terminal tree (< 50 ms execution).

ACADEMIC, LAB & FIELD EXPERIENCE

Engineering Thesis: Hands-Free HCI (Grade: 5 / 5)

01/2023 – 12/2024

- Researched HMM-based ASR and Continuous Command Recognition (CCR) with Kaldi Active Grammar and Dragonfly; earned highest honors (5/5). Published URI: [urn.fi/URN:NBN:fi:amk-2024120231895](https://nbn-resolving.org/urn:nbn:fi:amk-2024120231895) (Theseus Archive).

City of Turku / Finnish Meteorological Institute — Software Intern

09/2021 – 04/2022

- Engineered modular microservice architecture for municipal 5G IoT station (Raspberry Pi & ESP32) with FMI, integrating Sensirion SPS30 sensors, InfluxDB/Grafana telemetry, and Docker.

Autonomous Marine LiDAR & Sensor Array (TUAS / Awake.io)

08/2021 – 12/2021

- Bench-tested Intel RealSense L515 & Livox LiDAR sensors with Vaisala weather transmitters (RS-232/485); processed 3D point clouds in real time via C++/Python OpenCV for DataCity demonstrator.

IoT Physical Mail Detector & Smart Notifier (TUAS Linux)

01/2021 – 06/2021

- Developed multi-threaded Raspberry Pi & Arduino monitoring system (Grade 5/5): Sense HAT 3-axis accelerometer, automatic camera capture on mail flap deflection, and Telegram bot alerts.

IoT Battery Management System (BMS Capstone)

10/2020 – 03/2021

- Engineered automated BMS with Analog Devices LTC-6811 (2P4S LTO stack) and C++ Bluetooth SPP telemetry to edge Raspberry Pi. Awarded Winner: Best Technical Outcome.

theFIRMA — Backend Web Developer Intern

09/2019 – 12/2019

- Engineered backend user registration, authentication, password reset, and hour-tracking REST APIs using Node.js, Express, and MySQL/MongoDB databases.

TEKsystems (Champaign, IL, USA) — RF Field Test Helper

10/2017 – 04/2018

- Conducted pre-deployment RF spectrum data collection for SmartSky Networks cellular air-to-ground network using a Rohde & Schwarz FSH4 Spectrum Analyzer.

CONTACT

Turku, Finland

amirf147@gmail.com

+358 40 243 8245

Portfolio: amirf147.github.io

GitHub: github.com/amirf147

LinkedIn: linkedin.com/in/amirf147

EDUCATION

Turku University of Applied Sciences

B.Eng. in ICT (Embedded & IoT)

Graduated: Dec 2024

GPA: 4.15 / 5.0 (~3.7 US GPA)

Thesis Grade (5/5): [Theseus Archive](#)

TECHNICAL SKILLS

Programming Languages

- C# (.NET 10), Python
- TypeScript / JavaScript
- C/C++, AutoHotkey (AHK v2)
- PowerShell, Bash, SQL

Systems & Desktop

- Win32 OS Hooks & FlaUI.UIA3
- XML-RPC Hardware IPC Bridge
- COM Interop & Threading
- Docker, InfluxDB, Grafana

Hardware, IoT & Web Speech

- Web Speech API (VUI Engine)
- Raspberry Pi, Linduino (C++)
- ESP32 (Pycom LTE-M/NB-IoT)
- Analog Devices LTC6811 BMS
- Sensirion SPS30 & Livox LiDAR

Languages

- English: Native (US)
- Finnish: Professional Working

AGENTIC WORKFLOWS & PROTOCOLS

Antigravity IDE & Headless CLI

- Socratic Plan Gating (grill-docs)
- Epistemic Verification Protocols
- Red Teaming & Adversarial Reviews
- Claim Verifier Matrices (CLM-001–6)
- Living Specs (repository-brain.md)
- Mermaid AST Diagram Automation
- Graphify Knowledge Communities
- check_repo_safety.py AST Audit
- xUnit Invariant Reflection Suites