



CONTACT

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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

Amir Farhadi (B.Eng. ICT)

Software Engineer | CI/CD, Systems Automation & Desktop Engineering

- Finnish & U.S. Dual Citizen • Immediate Availability (Turku / Hybrid / Remote)
- Strong background in software engineering, CI/CD pipelines, C#/.NET systems, and sensor technologies
- Open-Source Collaborator on dictation-toolbox/Caster; published tools on Tiny Tool Town

WORK EXPERIENCE

- City of Turku / Finnish Meteorological Institute — Software Intern 09/2021 – 04/2022
- Engineered a modular microservice architecture for a municipal 5G IoT environmental station (Raspberry Pi & ESP32), Sensirion SPS30 PM sensors, and real-time InfluxDB/Grafana telemetry.
- theFIRMA — Backend Web Developer Intern 09/2019 – 12/2019
- Engineered backend user registration, authentication, password reset, and hour-tracking endpoints using Node.js, Express, and MySQL/MongoDB databases.
- TEKsystems (Champaign, Illinois, 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.

TECHNICAL PROJECTS & SYSTEMS ARCHITECTURE

- 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) daemon & MCP server with GitHub Actions CI/CD pipeline enforcing release builds, xUnit architectural integrity assertions, and check_repo_safety.py security audits; Win32 gating (< 0.5 ms).
 - Implemented lock-free L1 atomic cache (< 15 ns), SQLite WAL L2 time-series store on STA message pump, and ContextPrivacySanitizer for automated password and OAuth masking.
- 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 a containerized Gemini/Azure Speech MCP server and Python telemetry dashboard.

OPEN-SOURCE CONTRIBUTIONS & UPSTREAM PRS

- Caster Framework (Merged Pull Requests) 05/2026 – 08/2026
- [PR #975](#) (NumberRef Refactor): Rebuilt number grammar rules using NumberRef, eliminating the legacy 4-digit dictation ceiling.
 - [PR #965](#) (HUD Startup Sync): Added thread polling and retry logic to resolve thread initialization race conditions.
 - [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 length bounds.
 - [Dragonfly PR #408](#) (Kaldi Deferred Reload Race): Fixed fatal KaldiError crashes during deferred grammar reloads.
 - [PyVDA PR #57](#) (Stale COM & RPC Handling): Intercepted 0x800706BA RPC errors on Explorer restarts to rebind IVirtualDesktopManager.

PUBLISHED TOOLS & ACADEMIC PROJECTS

- WinStasis & vdtree — CLI Utilities & Automation 2026
- [WinStasis](#) (Tiny Tool Town): Standalone C# .NET CLI tool to snapshot and restore window coordinates, dimensions, and desktop assignments.
 - [vdtree](#) (Tiny Tool Town): Standalone C# .NET CLI tool mapping out active virtual desktops and open HWND windows in a terminal tree (< 50 ms).
- 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 (Theseus Archive).
- 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) 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.