Mohammadreza Asadi

Github | LinkedIn | mohreezaasadi@gmail.com | +98 (936) 028 4814

Education

- **MSc** in Computer Software Engineering | Shiraz University | GPA : 3.2/4 *Sep 2015 – Sep 2018*
- **BSc** in Computer Software Engineering | Quchan Tech University | GPA : 2.8/4 *Feb 2010 – Feb 2013*
- **AsD** in Computer Software Technology | Kerman Tech University | GPA : 3.2/4 *Sep 2007 – Sep 2009*

Research Interests

- Combinatorial Optimization
- Decision Making under Uncertainty
- UAV Path Planning and Scheduling

Research Experience & Academic Projects

- **Master's Thesis**: "*Parameter Estimation in Signal Transduction Networks Using Hybrid Metaheuristics*"
  Designed and implemented a *hybrid Scatter Search + Genetic Algorithm (GS-PE)* framework to improve parameter estimation in complex nonlinear ODE-based biological networks. Developed a comprehensive Python-based simulation and benchmarking suite for 10 networks (2–39 parameters), enabling detailed performance visualization and comparative analysis. The implementation achieved significantly higher accuracy, robustness, and convergence speed on large-scale networks compared to baseline methods, highlighting the effectiveness of hybrid evolutionary algorithms for global optimization in systems biology. Emphasis was placed on reproducibility, clarity of results, and generating outputs that facilitate both quantitative and visual evaluation of algorithm performance.
- **Multi-Depot Vehicle Routing Problem (MDVRP)**
  Architected and implemented a fully-featured C# benchmarking framework for NP-hard MDVRP instances, integrating advanced metaheuristics (GRASP, SA, Tabu Search, GA, ACO). The system enabled real-time monitoring of solution quality, convergence trends, and statistical performance across multiple runs. Achieved consistently superior solutions in terms of optimality and stability compared to standard approaches. The framework emphasized both high-quality algorithmic solutions and user-observable outputs, enabling transparent assessment of algorithm efficiency and comparative evaluation.
- **Orienting Problem with Hotel Selection**
  I contributed to designing a C# optimization module for the Hotel Selection Problem, integrating metaheuristic methods such as Genetic Algorithm, Ant Colony Optimization, GRASP, Tabu Search, and Simulated Annealing. I implemented the evaluation and selection criteria to balance multiple objectives, including cost, distance, and customer preferences. Additionally, I conducted performance testing and comparative analysis of the algorithms to identify the most effective strategies for different scenarios.
- **Vessel Routing Problem**
  Contributing to the vessel routing problem significantly strengthened my practical algorithm-design skills. I helped build a C++ benchmark suite covering 240 vessel-routing instances of different sizes and configurations, providing a structured framework for performance evaluation. By implementing ALNS and GRASP, I achieved substantial improvements in solution quality and consistently reached near-optimal or optimal results across the full instance set.
- **USB Port Control Application for LAN (BSc Final Project, C#)**
  Developed a distributed client–server system for real-time USB port monitoring and control over a local network using C# socket programming and multithreading. Implemented secure communication protocols, an intuitive administrative GUI, and detailed event logging.

Work Experience

– **Senior Software Engineer & Cloud Developer**
Intuitive Robotics | Full-Time - Remote | Australia | Website *Sep 2020 – Present*
Joined Intuitive Robotics during its early startup phase to contribute to the design and realization of a next-generation cloud robotics platform for autonomous drone management. My role evolved from core system development to orchestrating the integration of diverse components—IoT telemetry, cloud infrastructure, and real-time visualization—into a unified and resilient architecture.
Working within a small interdisciplinary team, I coordinated backend, embedded, and design efforts to bridge technical feasibility with operational goals. A central challenge involved establishing reliable communication between remote drones, docking stations, and the cloud infrastructure under real-world network constraints. To address this, I developed cloud-based services for telemetry synchronization and real-time data streaming using AWS (Kinesis, Firehose, Athena), integrating them with Grafana for dynamic visualization.
I also contributed to C++ modules that aligned live drone video with VR environments, enhancing situational awareness and system coherence. Through these efforts, the company successfully launched its first commercial deployment with an initial fleet of five operational docking stations. Following this pilot phase, additional systems are being integrated into the platform. Beyond the technical accomplishments, this experience strengthened my understanding of system-level design, distributed communication, and the integration of heterogeneous systems—skills that continue to shape my academic interests in robotics and intelligent systems.

– **Technical Lead**
Rabinet | Part-Time - On-Site | Shiraz, Iran | Website *Mar 2020 – Sep 2020*
Led technical operations and project execution for a cross-functional team of engineers and designers. Managed sprint cycles, client communications, and alignment between design goals and backend systems. Oversaw Linux-based servers, deployment pipelines, and project timelines, delivering multiple commercial web platforms on schedule. Applied strong technical leadership and project management to enhance coordination, efficiency, and delivery quality.

– **Full Stack Developer**, Various Part-Time Roles *2018 – 2019*
Developed backend services, microservices architectures, and cloud-native solutions for tourism and pharmaceutical platforms. Applied containerization using Docker and automated deployment strategies.

Technical Skills & Competencies

– **Programming & Tools:** Python (Numpy, Scipy, Optimization, gRPC), C# (.Net Core, Azure Functions), C++ (Beast web-socket, VR App development), Git, LaTeX, Cloud (Azure, AWS), CI/CD (Azure DevOPS, Github Actions).

– **Research & Analytical:** Metaheuristic Algorithms (GA, ACO, GRASP, Tabu Search, SA, ALNS), Mathematical Modeling (ODEs, Combinatorial Optimization), Real-time Data Analysis, Performance Benchmarking.

– **Machine Learning:** Fundamentals, Edge ML applications for Robotics/IoT, Streaming Data ML Pipelines.

– **Project Leadership:** Team Mentoring, Agile/Iterative Development, Strategic Planning, Cross-Functional Collaboration.

– **Communication:** Technical documentation, Presenting Results to Mixed audiences, Knowledge Sharing & Transfer.

Certifications & Online Courses

– IELTS Academic (*Computer-Based*) Overall Score : **7.0** *Jul 2025*
Listening : **6.5** Reading : **7.5** Writing : **6.5** Speaking : **6.5**

– Improving Deep Neural Networks Hyperparameter Tuning (*Coursera Platform*) | View *Dec 2023*

– Neural Networks and Deep Learning (*Coursera Platform*) | View *Sep 2023*