

# Seyed Ali Salehi Neyshabouri

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## Game Programmer

- OBJECTIVE
- ◇ To grow by pushing myself beyond my limits through working as a graphics programmer in a passionate, talented team with great culture that constantly endeavors excellence
- SKILLS
- ◇ **Mathematics**
    - Proficient in mathematics, including calculus, linear algebra, and discrete mathematics
  - ◇ **Programming**
    - Expert in reading, modifying, and refactoring large code-bases
    - *Languages:* C/C++ (12 years), Cg/GLSL/HLSL (6 years), C# (6 years), Python, Java, and Javascript (1 year), Lua, Assembly and Verilog (<1 year)
    - *Platforms:* Windows, Linux, Mac OS, Android, iOS, and embedded processors including ARM, FPGA, and soft processors
    - *Experience in using:* Visual Studio, Rider, XCode, and IntelliJ IDEA
  - ◇ **Hardware**
    - In-depth knowledge of computer hardware including CPU and GPU architectures, and their profiling and optimization techniques
    - Familiar with electrical system design and embedded development
  - ◇ **Game Programming**
    - Extensive knowledge of game engine architecture, especially rendering, memory management, entity component systems, and networking
    - *Experience in developing with:* Unity (6 years), and Unreal Engine (<1 year)
  - ◇ **Computer Graphics**
    - Familiar with real-time rendering techniques, especially physically-based shading, indirect lighting methods, different forward and deferred rendering methods, voxel-based techniques, virtual texturing, and texture splatting
    - Familiar with implementing real-time rendering techniques using GP-GPU
    - *Experience in developing with:* OpenGL, Direct3D, and Vulkan APIs
  - ◇ **Design Patterns and Models**
    - Familiar with programming models and design patterns especially asynchronous programming model, multi-threading, data-oriented design, reactive programming, entity-component-systems, model-view-controller, and service-oriented architectures (especially the virtual actor model)
  - ◇ **Online and Multiplayer**
    - Familiar with high-performance server-side distributed service-oriented architectures
    - Familiar with multiplayer game architectures and network protocols
  - ◇ **Artificial Intelligence**
    - Extensive knowledge of probabilistic planners, and their applications in safe navigation
    - Familiar with machine learning and its applications in data science
  - ◇ **Production and DevOps**
    - Extensive knowledge of game production and Agile, especially Scrum and Kanban
    - Familiar with Continuous Integration, Continuous Delivery, and static code analysis
    - *Experience in using:* PivotalTracker, Targetprocess, and Jira; Jenkins; build systems including make, cmake, gradle, and ant; version control systems including Git and Perforce

- ◇ **Senior Game Programmer, [Awesome Prototype](#)** (2018 - Present)
  - Conducted research for an unannounced project
  - Made prototypes of the studio's upcoming projects
  - **Season 18** (*Football Manager for mobile platforms*)
    - Implemented new game features and maintained the current ones, both in the backend and the client
    - Optimized game performance and build size
- ◇ **Senior Engineer, [Wooga](#)** (2017 - 2018)
  - Helped the tech-art team with graphics programming tasks
  - **Bubble Island 2** (*Bubble shooter puzzle game for mobile platforms*)
    - Implemented new game features and maintained the current ones
- ◇ **Lead Programmer and Co-Founder, [Arna](#) Game Division, [Fanap](#)** (2014 - 2017)
  - As the technical lead of a newly formed team I did the following:
    - Designed custom Agile methodology based on Scrum and Kanban and directed the team adaptation process
    - Designed the branching, versioning, testing, and deployment strategies
    - Directed the technical team in developing our core technologies
    - Wrote the performance guideline for the artists
  - **Babapaz** (*Time-management Cooking Game for mobile platforms*)
    - Developed the game based on the Entity-Component-System architecture using the [Entitas](#) framework
    - Developed an automated level generation tool
  - **Q-Bang** (*Twin stick shooter game for Android*)
    - Developed a lighting solution to suit the low-poly art-style, including custom shading model and PRT
    - Developed a high-performance shadowing solution for mobile devices, incorporating blob shadows, and shadow map caching
  - **Ashoub** (*Online multiplayer and story-based Collectible Card Game for mobile platforms*)
    - Developed an offline first solution using a NoSQL embedded database, and multi-layer caching and synchronization
    - Developed navigation system for the UI, and implemented an asynchronous resource management system supporting virtual views in the MVVM pattern
  - **Adon** (*Server-side and networking technology to develop multiplayer online games*)
    - Designed the high-level software architecture based on the Service Oriented Architecture especially the Virtual Actor Model
    - Designed the roadmap and led a team of four programmers, developing using various programming language (C/Assembly, C#, Java, Python, and PHP) with different design goals (performance, development speed, security, and reliability)
    - Implemented the mid-tier functionalities in C# heavily using the asynchronous model
    - Technologies used: MongoDB, Redis, RabbitMQ, Elasticsearch, Kibana, Tomcat
- ◇ **Graphics Programmer, Egloo Studio** (2012 - 2014)
  - **Raze Roshan** (*Third person, story driven action game for PC built with Unity*)
    - Developed a physically based deferred rendering and lighting solution for Unity
      - Used sub-sampling for G-Buffer to pack more material properties, and illumination buffer to support colored specular reflections
      - Indirect illumination solution based on a mix of parallax corrected reflection probes, screen-space directional occlusion and reflections, and object-space PRT
    - Implemented a height-based [texture splatting](#)
    - Assigned as the gameplay and AI programmer later in the project

- Implemented the enemy AI based on the Behavior Trees
- Designed the character animation system using partial and additive animations

- ◇ **Graphics Programmer**, Tosan Gaam (2013 - 2014)
  - **Dark Madness** (*Story-driven 3rd person horror game for PC built with Unity*)
    - Developed a custom physically-based lighting solution to boost the visuals without requiring radical changes to the art assets, did profiling and optimization, and implemented various gameplay-specific visual effects
- ◇ **AI Researcher**, *Immortals* (*Robotics team focused on adversarial AI, dynamic motion planning and multi-agent cooperation*) (2008 - 2017)
  - Developed the base AI framework and a **data-driven strategy system** using **GP-GPU** and **data-oriented design**
  - Conducted research on multi-agent cooperation and decision making especially the **STP**
  - Conducted research on dynamic safe navigation, especially **RRT** and **DSS**, developed new methods including **NOK-RRT** and **SB-RRT**
  - Developed a **soccer simulator software**
  - Designed the **main electronics** of the robots and developed the embedded software
- ◇ **Other experiences**
  - **Graphics Programmer**, Personal Project (2017 - Present)  
Developed a rendering engine in my free time to learn and experiment with real-time rendering methods
  - **Programmer**, Personal Project (2016 - Present)  
Developed an auto-trader for financial markets, using machine learning in Python and C++
  - **Graphics Programmer**, *Dead Mage* (2013 - 2014)  
Implemented some gameplay-specific visual effects for the *Shadow Blade* game, and helped to move the studio to a physically-based rendering pipeline
  - **Programmer**, *Arna* (2012 - 2014)  
Developed server side soccer simulation software for the *ParsCup* game in C++

#### HONORS AND AWARDS

- ◇ Best Action Game of the Year award for Q-Bang, 6th Tehran Video Game Festival (Iran, 2017)
- ◇ Best Strategic Game of the Year award for Ashoub, 5th Tehran Video Game Festival (Iran, 2016)
- ◇ Member of **RoboCup** Technical Committee (2014 - 2015)
- ◇ Best Extended Team Description Paper award, **RoboCup** (Turkey, 2011)
- ◇ Second place, Small Size Soccer League, **RoboCup** (Turkey, 2011)
- ◇ First place, Machine Vision League, **SharifCup** (Iran, 2014 & 2013 & 2012)

#### PUBLICATIONS

- ◇ Neyshabouri, S.A.S; Kamali, E; Niknezhad, M.R; Monfared, S.S.M.S. *A Method for Real-Time Safe Navigation in Noisy Environments*, 18th International Conference on Methods and Models in Automation and Robotics (MMAR 2013), Aug. 2013.
- ◇ Neyshabouri, S.A.S; Kamali, E; Niknezhad, M.R. *A Novel Approach to Real-Time Processing: Implementing Complex Calculations on GPU*, RoboCup IranOpen 2010 Symposium, Apr. 2010.

#### MISC

- ◇ **Favorite games:** Journey, Inside, The Last of Us, Uncharted series, Pro Evolution Soccer, Assassin's Creed series, Max Payne 1 and 2, Call of Duty Modern Warfare series, and Dota 2