

NIHAT ISIK

Computer Science

@ nihat@nihatisik.com Zürich, Schweiz Nationality: Swiss
nihatisik.com kneehatgames.ch @kneehatgames github.com/devnio



Software Engineer with 3 years of C, C++, C# and Python development experience. Strong 3D math skills. Extensive experience in game development, gameplay, game engine, graphics, AI, and physics programming. Team player able to contribute to many areas of software development.

EDUCATION

MS Computer Science

Computer Vision & Graphics Focus

Sep 2018 - Mar 2021 ETH Zürich, Switzerland

- Shape Modeling and Geometry Processing (5.75/6.0)
- Physically-Based Simulation in Computer Graphics (5.25/6.0)
- Advanced Systems Lab (5.5/6.0) Computer Vision (5.0/6.0)
- Game Programming (2nd place)

BSc Computer Science

Sep 2015 - Aug 2018 ETH Zürich, Switzerland

- Visual Computing (5.0/6.0) Lineare Algebra (5.25/6.0)
- Analysis I & II (5.25/6.0)

WORK EXPERIENCE

Software and Research Engineer Internship

Optimize human pose estimation pipeline

Oct 2019 - Feb 2020 Disney Research Studios

- Worked on the problem of Human Pose Estimation from single RGB Camera.
- Research ways to reduce outliers in the prediction.
- Implement a skeleton importer in Blender and Maya.
- Implement a Gradient Descent optimizer in order to achieve better results in the final 3D output by taking advantage of the accurate 2D predictions.
- Implement a system to visualise the predictions and virtually augment characters (e.g. add a hat) in Unity.
- Technologies: C#, Python, PyTorch, Blender, Maya, Unity

Software Engineer - Game Developer

Personal Startup

Apr 2018 - present Kneehat Games

- Design and develop games as a solo developer collaborating with artists.
- Developed a game from scratch using Unity Game Engine and published on Google Game Play and App Store (Space Color Bird).
- Technologies: C#, Unity, Blender, Photoshop, Udacity

Master Thesis

Interpolating Keyframed Poses into Locomotion

Sep 2020 - March 2021 Disney Research Studios

- Implement a tool for animators to send simple keyframed poses from Maya to Unity. Process information in Unity and create a locomotion animation with the received keyframes. Send locomotion poses back to Maya.
- Implement a Maya GUI application.

TECHNICAL STRENGTH

C# ●●●●●

C/C++ ●●●●●

Python, PyTorch ●●●●●

Java, Eiffel ●●●●●

HTML, CSS, JS, Bootstrap ●●●●●

Git, Sourcetree

Unity Game Engine, Blender

Photoshop, Premiere

ACHIEVEMENTS

Hazmat - Game Programming
Secured 2nd place in the course over 7 games produced by groups of 3-6.

Hall of Fame - Physically-Based Simulation
Secured a place in the *Hall of Fame* section of the course.

Space Color Bird
Published a game on App Store and Google Play.

Augmenting Cats and Dogs: Procedural Texturing for Generalized Pet Tracking
Published a paper as a co-author at GRAPP - 16th International Conference on CG Theory and Applications during my Internship at Disney Research Studios.

LANGUAGES

German Native

Italian Native

Kurdish Native

English C1

Turkish B2

- Implement a server-client connection between Unity and Maya to exchange poses back and forth.
- Implement paper *Recurrent transition networks for character locomotion*.
- *Technologies: C#, Python, PyTorch, Unity, Blender, Maya*

Bachelor Thesis

UnityRL: a Deep Reinforcement Learning Framework to train Characters in the Unity 3D Environment

📅 Feb 2018 - Aug 2018 📍 Computational Robotics Lab

- Tested Unity RL and trained different environments to test the most effective description for the agents in a Reinforcement Learning setting.
- Trained a virtual car to park.
- *Technologies: C#, Python, Unity, ML Agents, Blender*

Teaching Assistant

Software Engineer in C++

📅 Feb 2019 - May 2019 📍 ETH Zürich, Switzerland

- Teach c++ and OOP concepts to ~20 students.

Teaching Assistant

Introduction to Java

📅 Sep 2017 - Dec 2017 📍 ETH Zürich, Switzerland

- Introduce programming concepts using Java to ~20 students.

PROJECTS

Fast CPU RayMarcher

- Advanced Systems Lab course at ETH, semester-long team project of four people.
- Responsible for scalar optimization (codemotion, strength reduction, loop unrolling, etc.).
- Responsible for vectorizing the pipeline using Intel Intrinsics (SIMD).
- Responsible for creating a .json scene parser.
- *Technologies: C, C++.*

Physically based simulation: rigid and soft body simulation library

- Project for PBS master course at ETH.
- Library that consists of a position based dynamics system with a Verlet integration scheme. All objects are represented by particles and constraints.
- Solving for the constraints is done iteratively in a Gauss-Seidel fashion.
- Lightweight and supports cloth system, dynamic elastic mesh deformation and elastic rig.
- *Technologies: C#, Unity.*

Build a Game in a Team

- Team of 6 people, 3 artists and 3 programmers, using Scrum workflow.
- Built a game using Monogame, integrating different frameworks and the assets from the artists.
- *Technologies: C#, MonoGame, Blender.*

Build a Physically-based Path Tracer

- I developed a physically-based renderer implementing Path Tracing, depth of field and other rendering features.
- *Technologies: C++, Nori.*

Semantic Road Segmentation

- Computational Intelligence Lab course at ETH. Team: four people.
- From 100 labeled satellite images we trained a network to learn to detect roads pixelwise.
- *Technologies: Python, Keras.*

Personal Project: Space Color Bird

- Indie game studio.
- Published a game on iOS and Android.
- *Technologies: C#, Unity, Blender, Photoshop.*

EXTRACURRICULAR ACTIVITIES

Ludicrous - Zürich Game Festival

📅 2018, 2020 📍 Zürich, Switzerland

- Attended the gaming convention twice for personal interest about the game industry.

Hack Zürich

📅 Sep 2019 📍 Zürich, Switzerland

- Participated in the hackaton, connected with people and learned interesting technologies.

Computer Science Consultant

📅 Feb 2018, Feb 2019 📍 TI, Switzerland

- Introduced Computer Science at ETH to high school students.

Parkour Teacher

📅 Sep 2012 - Sep 2015 📍 TI, Switzerland

- Hold parkour courses to ~10-20 students.
- Outside and inside parkour sessions.

Summer Camp Supervisor

📅 July 2013 - Aug 2013 📍 TI, Switzerland

- Supervise kids for 1 month of daily summer activities.

HOBBIES



Gaming

I enjoy playing games. This also inspires me to try and replicate some nice effect or mechanic that catches my curiosity.



Fitness

I keep care of my body and mind by exercising regularly. I do all types of sports, but usually I train with weights.



Reading

I read all types of genres but I mostly prefer self improvement books or books that cover topics that I don't know much about.

REFERENCES

Available upon request.