MIRA E. MECHTLEY, PH.D.

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Profile

My interests and professional experience lie at an unusual intersection of physical sciences, games/interactive media, and statistics/data science. The common thread is my strong background in mathematics and software development, with a particular focus on applied linear algebra. I have a passion for solving difficult problems, especially those that lie near the intersection of software and hardware. I work best in dynamic, team-based environments where I can apply my broad skill set to provide support where it's needed, and where I can learn from and share skills with my coworkers.

Experience

Lead Engineer, Dinogod; Denver, CO — 2020–Now
Lead engineer on Bounty Star, a narrative 3d action game published by Annapurna Interactive and developed in Unity. Designed and developed most gameplay systems. Console development, tools and support, ui development.

Software Engineer, Dire Wolf Digital; Denver, CO — 2017–2020
Engineer primarily on Eternal, a digital collectible card game, and Root, a digital adaptation of the board game by Leder Games. Lead client engineer on Root. Client-side implementation of Tournaments and Events framework, client gameplay development, and other responsibilities on Eternal. Console and mobile development for several projects.

Postdoctoral Researcher, Arizona State University; Tempe, AZ — 2015–2016
US-funded continuation of previous Hubble Space Telescope quasar research, with a focus on applications of modern data science and statistical inference methods to astronomy (e.g., Bayesian methods, machine learning, stochastic gradient, etc.). Mentored two undergraduate students (directed research, taught programming and software tools).

Staff Scientist, Max Planck Institute for Astronomy; Heidelberg, Germany — 2013–2015
Researched the triggering mechanisms of super-massive black hole growth and the effects of quasars on their hosting galaxies. Focus on detailed statistical modeling of Hubble Space Telescope images, and developing software to automate the modeling process and perform it in parallel on high-throughput computing systems (cloud or grid-style distributed architectures).

Graduate Researcher, Arizona State University; Tempe, AZ — 2009–2013
Researched statistical properties of distant galaxies using Hubble Space Telescope data. Focus on understanding hardware (cameras, telescopes) effects and incorporating these into statistical models to make better measurements. Developed end-to-end automation pipelines (raw data to publishable summary statistics or graphs) for tasks such as data preparation and calibration, finding galaxies and measuring their properties (using computer vision techniques), finding lunar craters and measuring their properties (also CV techniques), and detailed statistical modeling of single-galaxy images.

Simulations Programmer, Flashbang Studios; Tempe, AZ — 2007–2009
Developed 7 web/desktop and 4 iPhone games in Unity3D, with six people over the course of two years. Focus on rapid iteration and prototyping capabilities of Unity, with flexible roles for myself and 2 other programmers. Worked on almost every client-side system including AI, physics, animation, GUI, input (both desktop and iOS), and core gameplay code such as procedural generation, mission systems, etc. My unique expertise was linear algebra / 3D logic implementation, and hardware interfaces and optimization — e.g. iOS optimization, interpreting touch and accelerometer data, and prototyping with non-standard input hardware (Wiimotes, plastic guitars, a hacked PowerGlove, a USB breathalyzer)

Education
Arizona State University, Tempe, AZ — Ph.D. Astrophysics, 2014
Arizona State University, Tempe, AZ — B.S. Mathematics, 2007

Skills
General Computational: Game client development, toolchain automation, hardware optimization (both on-device performance and input interpretation), data science & statistical inference, image analysis & computer vision

Specific Software/Languages/OSs: Advanced: Unity3D, C#, Python, Bash, C, Objective-C, MacOS, Windows, Linux, iOS — Basic: CG, Photoshop/Illustrator, MySQL, R — Deprecated: PHP, Java, Perl

Soft/Interpersonal: Working on small- to medium-sized teams, producing readable, documented code, learning new systems/software/APIs quickly, skillsharing, mentoring/teaching, maintaining an even keel in stressful situations