

Michael Cerny Green

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LinkedIn: www.linkedin.com/in/michael-cerny-green | Github: <https://github.com/mcgreentn>

Website: <http://mikecgreen.com> | Google Scholar: [Michael Green](#)

EDUCATION:

New York University, New York NY

PhD – Artificial Intelligence, GPA: 3.83

June 2022

Lehigh University, Bethlehem PA

B.S. – Computer Science and Business, B.A. – Classical Civilizations, GPA: 3.68

May 2016

Temple University, Rome Italy

Study Abroad Semester – Italian Art, GPA: 3.59

Fall 2014

PROFICIENCIES AND SKILLS:

Languages/Libraries: Python, C#, Java, Javascript, HTML, Scala, Pandas/Numpy, Plotly, React, Flask

AI/ML: Pytorch, Pytorch-Lightning, Evolutionary Algorithms, Tree Search, Deep Learning, Reinforcement Learning

Cloud/Infra: AWS (S3, Batch, EC2, DynamoDB, Lambda, Cognito), Docker, Kubernetes

WORK EXPERIENCE:

Origen.AI, Brooklyn, NY

Artificial Intelligence Software Manager

April 2020-Feb 2022

Artificial Intelligence Researcher

November 2018-April 2020

Founding employee of a private, AI-applied technology platform startup developing models for the energy industry.

- Successfully managed and executed platform deployment projects, capturing ~\$300k in revenue in FY 2020, \$1m in FY 2021
- Pitched to investors to close ~\$1m in seed funding in FY 2021.
- Responsible for the creation and maintenance of OriGen's artificial intelligence research and production framework using Pytorch and Pytorch-Lightning, accelerated computing using NVIDIA, containerized with Docker, and written in Python.
- Enabled the framework to be backend-agnostic, allowing to be plugged directly into the OriGen Proteus platform for production use, while also being compatible for standalone-usage with cloud-infrastructure such as AWS, GCP, and Azure.
- Built a scalable AI/ML research pipeline using Neptune, AWS Batch, and AWS S3 for rapid model training/validation/testing iteration on multi-gpu instances.
- Directly engaged with clients to transform platform use cases into engineering and research requirements.
- Published paper detailing a new network paradigm to solve non-linear partially differentiable equations using attention mechanisms and residual calculations (<https://arxiv.org/pdf/2105.07898.pdf>)

Imbellus, Inc, Los Angeles, CA

May-August 2018

AI/ML Engineer

~25 employee personal assessment startup.

- Worked on a 4-employee team doing research and development using tree search, evolutionary strategy, and reinforcement learning.
- Built an evolutionary level generator to dynamically train reinforcement learning AI agents to play assessment levels.
- Published research at the Reinforcement Learning in Games workshop at AAAI 2019.
- Optimized internal processes to facilitate AI creation and use for the software and research teams.

PricewaterhouseCoopers, New York, NY, *Cybersecurity Consultant Intern*

June-August 2016

Lutron Electronics, Inc., Coopersburg, PA, *Software Engineering Intern*

May-August 2015

FedEx Corporation – FedEx Services, Memphis, TN, *IT Information Security Intern*

June – August 2014

Retrans, Inc. Precision Logistics, Memphis, TN, *IT Software Development Intern*

May - July 2013

RESEARCH AND PROJECTS:

Procedural Content Generation

Automated generation of content using tree search, evolutionary optimization, or machine learning.

- [\[2017\] "Press Space To Fire": Automatic Video Game Tutorial Generation](#) – Michael Cerny Green, Ahmed Khalifa, Gabriella A. B. Barros, and Julian Togelius – EXAG Workshop at AIIDE 2017.
- [\[2018\] Generating Levels That Teach Mechanics](#) - Michael Cerny Green, Ahmed Khalifa, Gabriella A. B. Barros, Andy Nealen, and Julian Togelius - PCG Workshop at FDG 2018
- [*\[2018\] AtDelfi: Automatically Designing Legible, Full Instructions for Games](#) - Michael Cerny Green, Ahmed Khalifa, Gabriella A. B. Barros, Tiago Machado, Andy Nealen, and Julian Togelius - FDG 2018
- [\[2019\] Intentional Computational Level Design](#) - Ahmed Khalifa, Michael Cerny Green, Gabriella Barros, Julian Togelius - IJCAI 2019
- [\[2020\] Mario Level Generation From Mechanics Using Scene Stitching](#) – Michael Cerny Green, Luvneesh Mugrai, Ahmed Khalifa, and Julian Togelius – CoG 2020
- [\[2020\] Mech-Elites: Illuminating the Mechanic Space of GVG-AI](#) - M Charity, Michael Cerny Green, Ahmed Khalifa, and Julian Togelius - FDG 2020
- [\[2022\] Persona-driven Dominant/Submissive Map \(PDSM\) Generation](#) – Michael Cerny Green, Ahmed Khalifa, M Charity, and Julian Togelius – FDG 2022

Automated Gameplaying Agents

Artificial agents that can play/win/explore.

- [\[2018\] Automated Playtesting with Procedural Personas through Evolution Based MCTS](#) - Christoffer Holmgard, Michael Cerny Green, Antonios Liapis, and Julian Togelius - TOG 2018
- [\[2019\] Two-step Constructive Approaches for Dungeon Generation](#) - Michael Cerny Green, Ahmed Khalifa, Athoug Alsoughayer, Divyesh Surana, Antonios Liapis, and Julian Togelius - PCG Workshop at FDG 2019
- [\[2019\] Evolutionarily-Curated Curriculum Learning for Deep Reinforcement Learning Agents](#) - Michael Cerny Green, Benjamin Sergeant, Pushyami Shandilya, and Vibhor Kumar - RL Workshop at AAAI 2019
- [\[2020\] Bootstrapping Conditional Gans for Video Game Level Generation](#) - Ruben Rodriguez-Torrado, Ahmed Khalifa, Michael Cerny Green, Niels Justesen, Sebastien Risi, and Julian Togelius - COG 2020

Analytics and Statistical Analysis

Analyzing users/players and their behaviors.

- [\[2019\] Automatic Critical Mechanic Discovery Using Playtraces in Video Games](#) - Michael Cerny Green, Ahmed Khalifa, Gabriella A. B. Barros, Tiago Machado, and Julian Togelius - FDG 2019
- [\[2021\] Game Mechanic Alignment Theory](#) - Michael Cerny Green, Ahmed Khalifa, Philip Bontrager, Rodrigo Canaan, and Julian Togelius - FDG 20201
- [\[2022\] Predicting Personas Using Mechanic Frequencies and Game State Traces](#) – Michael Cerny Green, Ahmed Khalifa, M Charity, Debosmita Bhaumik, and Julian Togelius – WCCI 2022

*Best Paper Award

25+ published papers available upon request. Please see [Google Scholar](#) for more.

ORGANIZATIONAL EXPERIENCE:

Programming Committees

<i>Foundations of Digital Games (FDG)</i>	2018, 2019, 2020, 2021, 2022
<i>Conference on Games (COG)</i>	2019, 2020, 2021, 2022
<i>Procedural Content Generation Workshop at Foundation of Digital Games (PCG)</i>	2019, 2020, 2021, 2022
<i>Portuguese Conference on Artificial Intelligence (EPLA)</i>	2019
<i>User Experience of Artificial Intelligence (UXOF AI)</i>	2019, 2020, 2021
Local Co-Chairman of the AI for Games Summer School	2019