Karl Kiser

Biomaterials & R&D Engineer New York, NY · karl.j.kiser@gmail.com · linkedin.com/in/karlkiser · karlkiser.com

---

Summary

Applied biomaterials scientist and research engineer with experience spanning quantitative experimentation, controlled-environment biological systems, custom sensor and control-system development, data-driven process optimization, and mycelium platform development. Co-inventor on aerial-mycelium cultivation IP. First-author scientific publications. Strong translator between lab experimentation, model-based analysis, and manufacturable process improvement.

Experience

Senior Scientist, Research Engineer

Ecovative Design — Green Island, NY · 2022 – 2026

- Co-inventor on patent application covering growth media compositions and environmental conditions for improved aerial mycelium cultivation.
- Process development for aerial mycelium production including media optimization, environmental programming, and growth condition tuning.
- Designed and built novel sensors for closed-loop system control — programming microcontrollers, wiring custom hardware, and integrating real-time sensing into the cultivation environment.
- Contributed to cultivation platform supporting 25 real-time environmental conditions and AI-model-informed process decisions.
- Deployed on-site to domestic and international partner facilities (Netherlands, Canada, Pennsylvania) to transfer cultivation process, control systems, and operations training — often assuming direct control of partner lines during start-up and troubleshooting.
- Led conversion of a partner site from agaricus mushroom production to full mycelium production within a year; built data pipelines integrating partner operations into internal models and brought material to commercial spec.

Research Associate

Department of Radiology, NYU Langone Health & Weill Cornell Medical College — New York, NY · 2019 – 2022

- First-author publications in Scientific Reports and Tomography on dynamic contrast-enhanced MRI methods.
- Designed and executed quantitative experiments on tumor treatment response using active contrast-encoding MRI.
- Developed methods for cellular water exchange measurement, pharmacokinetic parameter estimation,

and image texture analysis.
- Presented research at ISMRM (International Society for Magnetic Resonance in Medicine) annual meetings.

Skills

Biomaterials & Cultivation: Aerial mycelium cultivation · Fungal growth optimization · Media design · Substrate optimization · Environmental programming · Controlled-environment experimentation · Pilot-scale process development

Quantitative & Analytical: Experimental design (DOE) · Statistical analysis · Pharmacokinetic modeling · Image texture analysis · Data-driven process optimization · Reproducibility analysis

Instrumentation & Controls: Sensor development · Microcontroller programming · Hardware integration · Closed-loop control · Embedded systems · Real-time data acquisition

Research & Communication: Scientific writing · Peer-reviewed publication · Patent documentation · Conference presentation · Cross-functional collaboration · Technical translation

---

Education

Pitzer College — Claremont, CA

B.A. in Biophysics · 2016

Selected Publications

- **K. Kiser** et al. "Evaluation of cellular water exchange in a mouse glioma model using dynamic contrast-enhanced MRI with two flip angles." *Scientific Reports* 13(1), 3007 (2023).
- **K. Kiser**, J. Zhang, S. G. Kim. "Textural Features of Mouse Glioma Models Measured by Dynamic Contrast-Enhanced MR Images with 3D Isotropic Resolution." *Tomography* 9(2), 721–735 (2023).
- **K. Kiser** et al. "Simultaneous estimation of the cellular water exchange rate, intracellular volume fraction, and longitudinal relaxation rate in cancer cells." *NMR in Biomedicine* 36(7), e4914 (2023).

Patents

- "Growth Media Compositions and Growth Environmental Conditions for Improved Aerial Mycelium." US 2024/0352400 A1 (PCT: WO 2024/226467 A1). Inventors: J. M. Winiski, **K. J. Kiser**. Assignee: Ecovative LLC.