Brian Keating, Ph.D.

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Summary

Computer vision engineer with more than ten years of experience analyzing medical images using both classical image processing and deep learning. Extensive track record of designing, developing, validating, and deploying machine learning models in regulated environments. Technical leader with proven ability to turn cutting-edge research into robust, production-ready software.

Experience

Chief Technical Officer

2021—present

Skintelligent – Atlanta, GA (remote from San Diego)

- Work with dermatologists to develop a suite of image analysis and deep learning solutions to assess skin health from cell phone photos.
- Own the full machine learning stack: curate images, manage labeling, develop training pipelines, and validate clinical performance of five AI models.
- Version and (automatically) deploy models behind documented APIs.

Senior Scientist, MLOps Lead

2020—2021

Cortechs.ai – San Diego, CA

- Led the technical development of an AI-driven brain cancer app from conception through FDA submission.
- Built scalable machine learning devops using mlflow, quiltdata, and github actions.
- Designed and developed a clean, well-documented, well-tested Python package for medical image analysis.

Machine Learning & AI Engineer

2018—2020

Healthlytix (merged with Cortechs.ai) – San Diego, CA

- Designed and trained convolutional neural networks for segmentation of prostate MRIs.

- Developed two academic prototypes into robust, production-level apps and helped guide them through FDA 510(k) clearance.
- Wrote algorithms for registration and segmentation of head CTs for use by ER radiologists.

Computer Vision Engineer

2016—2018

Uptake – Chicago, IL

- Led a small Data Science R&D group responsible for building Uptake's capabilities in image analytics.
- Developed object detection and change detection algorithms using both classical image analysis and deep learning for use with satellite imagery.
- Designed, implemented, and trained convolutional neural networks; personally curated and labeled a 30,000-image dataset.

Image Analysis & Data Visualization Consultant

2015—2016

Research Computing Center (RCC) – University of Chicago, Chicago, IL

- Scripted image processing – segmentation, registration, filtering, tracking – for microscopy and MRI research.
- Installed software and provided tech support for users of RCC's 13,000 node cluster.
- Taught "Image Analysis in Python" and "Introduction to RCC" workshops.

MR Research Specialist / Assistant Researcher

2008—2014

MRI Research Center – University of Hawaii, Honolulu, HI

- Pioneered novel methods for correction of patient motion during MRI acquisition.
- Designed, implemented, and published real-time motion correction algorithms for use in clinical studies.
- Received an intramural NIH grant to adapt MRI motion correction technology for use in a neonatal population.
- Supported the lab by scripting data analysis, mentoring new hires, and organizing a journal club.

Education

Ph.D. in physics
College of William & Mary, 2007

B.A. in physics
St. Mary's College of Maryland, 2003

Skills

Computer Vision & Image Analysis
convolutional neural networks for image segmentation and object detection; image filtering, registration, and segmentation; object tracking; camera calibration

Programming Languages & Frameworks
Python and scientific Python stack (numpy, scipy, scikit-learn, pandas); pytorch; opencv; working knowledge of bash; Flask; Django; basic Javascript/html/css; Matlab; rusty C++

Data Analysis & Machine Learning
standard techniques for supervised learning (linear models, random forests, neural networks) and unsupervised learning (PCA, k-means clustering); Kalman filtering; versioning, labeling, and analysis of large image datasets; classical statistics for clinical data analysis

Devops & Cloud
Docker; git; AWS (Fargate, Lambda, ECR, S3, etc.); terraform; github actions; mlflow; DVC (data version control)

Patent

“Systems, devices, and methods for detecting false movements for motion correction during a medical imaging scan”, US patent 15222811, with Thomas Ernst, Aditya Singh, Maxim Zaitsev, Michael Herbst