Gautham Nandakumar

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Education

- **Drexel University** — Philadelphia, USA
  Masters of Science - Biomedical Engineering; GPA: 3.69 — *Sept 2016 - June 2018*
- **Amrita University** — Coimbatore, India
  Bachelor in Technology - Electronics and Instrumentation — *Aug 2012 - Apr 2016*

Experience

- **Data Scientist 2 - Calico Life Science LLC** — South San Francisco, CA
  July 2023 - Present
  - Building Imaging phenotype related to Osteoarthritis from MRI and DEXA scans
  - Extracting Imaging phenotype for Digital Frailty Index in Mice
- **ML Engineer - PMX Inc** — Chicago, IL
  Jan 2020 - June 2023
  - Built chest HRCT based CADe platform targeting progressive fibrosing ILD for diagnosis assist, secondary/alternate end-point and cohort enrichment strategies for clinical trials.
  - Knowledge of SDLC, and curating SOPs for the same. Aligning with standards such as IEC 62304, 21CFR820.30.
  - Designed novel hybrid deployment platform, with on-premise installation or cloud native processing.
  - Facilitated head MRI based CADe platform to analyze 5 accelerated axial sequences T2, DWI, T2 FLAIR, T2*, and T1 (1.94x gain in imaging throughput) targeting neuro-degenerative diseases.
  - Developed advanced body composition tool with quantitative whole-body MRI scan and utilization in sports performance assessment.
  - Deployed platforms at 6 active sites across US, South Korea and India for multi-centered clinical assessment.
- **AI Engineer - Boston Meditech Group** — Boston, MA
  Nov 2018-Dec 2019
  - Assembled a detection AI to evaluate malignancy from calcifications present in mammograms and extract morphology and distribution-related features
- **Researcher - Digital Dental Hub Inc** — Remote
  Feb 2018-July 2019
  - Designed a segmentation model for automatic extraction of Caries from X-ray panoramic images using Mask-RCNN, enabling dentists to locate drill sites accurately.
- **Research Assistant - Advanced Pathology Imaging Lab, Drexel College of Medicine** — Philadelphia, PA
  Sep 2017 - Mar 2018
  - Improved penetration depth of the OCT technique by 15 percent to 1.5 mm through dynamic focusing making it ideal substrate for providing high resolution images of prostate cancer foci.

Publications

- Accelerated MRI using intelligent protocolling and subject-specific denoising applied to Alzheimer's disease imaging; ProfileKeerthi Sravan Ravi, Gautham Nandakumar, Nikita Thomas, Mason Lim, Enlin Qian, Marina Manso Jimeno, Pavan Poojar, Zhezhen Jin, Patrick Quarterman, Girish Srinivasan, Maggie Fung, John Thomas Vaughan Jr., Sairam Geethanath, the Alzheimer's Disease Neuroimaging Initiative; https://doi.org/10.1101/2022.10.24.22281473
- Gautham Nandakumar, Artur Trzesiok, Nikita Thomas, Axel Gedeon Mengara, Akhila Perumalla, Jaewoo Pi, Girish Srinivasan, Rashmi Sama, Hansuk Kim, "Fully automated CT to x-ray registration of infected lung regions for COVID-19 patient monitoring," Proc. SPIE 11601, Medical Imaging 2021:Imaging Informatics for Healthcare, Research, and Applications, 116010Y (15 February 2021); https://doi.org/10.1117/12.2582163
- Rohith Haridas, Gautham Nandakumar, Girish Srinivasan, Youngsung Yoo, Hansuk Kim, Mark Punyanitya, "Substantiating the effect of DXA variables in the prediction of diabetes mellitus using machine learning," Proc. SPIE 11601, Medical Imaging 2021: Imaging Informatics for Healthcare, Research, and Applications, 1160107 (15 February 2021); https://doi.org/10.1117/12.2582332
- G. Nandakumar, G. Srinivasan, H. Kim and J. Pi,"Comprehensive End-to-End Workflow for Visceral Adipose Tissue and Subcutaneous Adipose Tissue quantification: Use Case to improve MRI accessibility," 2020 IEEE 20th International Conference on Bioinformatics and Bioengineering (BIBE), 2020, pp. 1060-1064, doi: 10.1109/BIBE50027.2020.00179
- Gautham Nandakumar, Shantel Maharaj, David E. Breen,Fernando U. Garcia, Mark D. Zarella, "Image processing to extend effective OCT penetration depth in tissue," Proc. SPIE 10581, Medical Imaging 2018: Digital Pathology, 1058117 (6 March 2018);https://doi.org/10.1117/12.2293650

Outreach

- NVIDIA GTC 2019; 'Deep Mesh-Net – A network of deep learning architectures for comprehensive medical image analytics'; Girish Srinivasan, Gautham Nandakumar, Youngsung Yoo (Poster)

- PMX Inc selected as 12 Finalist for the Pulmonary Fibrosis Challenge hosted by MATTER and Three Lakes Foundation. https://matter.health/challenges/pf-innovation-challenge/