

# Rex Tin Long Fung

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Website: <https://rextlung.github.io/>

## EDUCATION

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**University of Michigan**, Ann Arbor, MI Sep 2022 - Present  
Ph.D. Candidate specializing in MRI sequence design and iterative reconstruction, with applications to accelerating functional MRI acquisition.

**University of Michigan**, Ann Arbor, MI Sep 2022 - Aug 2024  
**Program:** M.S., Biomedical Engineering (Imaging and Ultrasonics) **GPA:** 3.65/4.00  
**Relevant Coursework:** Linear Algebra, Optimization, Probability, Machine Learning, Image Processing, Medical Imaging Systems

**University of Michigan**, Ann Arbor, MI Sep 2018 - May 2022  
**Program:** B.S., Neuroscience major, Electrical Engineering minor **GPA:** 3.78/4.00  
**Relevant Coursework:** Digital Signal Processing, Electrical Biophysics, Embedded Control Systems, Sensing and ML for Neural Interfaces

## RESEARCH EXPERIENCE

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**Functional MRI Lab**, University of Michigan Sep 2022 - Present  
Graduate Student Research Assistant *Advisors: Dr. Jon-Fredrik Nielsen, Dr. Douglas Noll*

- Enabled cross-vendor research collaborations across 7 institutions e.g. Harvard Medical School, Freiburg University Hospital etc., by developing open-source MRI sequences using Pulseseq.
- Reduced acquisition time of fMRI data by over 6x, by designing a novel 3D-EPI sequence with arbitrary sampling patterns e.g. Poisson-disc random sampling.
- Pioneered a technique for simultaneously reconstructing over 100 GBs of 4D fMRI data, by programming an iterative optimization algorithm in Julia.
- Co-authored 1 article and 3 posters at top-tier journals and conferences.

**Bo Duan Lab**, University of Michigan Jul 2020 - May 2022  
Undergraduate Research Assistant *Advisor: Dr. Bo Duan*

- Automated statistics on over 30 hours of behavioral footage, by using a computer vision model to analyze mice position in experimental cage.
- Automated cell-counting tasks on over 200 fluorescent microscopy images of mice spinal cord tissue.

## TEACHING EXPERIENCE

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**BME/ECE 516 Medical Imaging Systems**, University of Michigan Sep 2024 - Dec 2024

- Mentored 20-30 students to learn Medical Imaging Systems e.g. MRI, ultrasound, by guiding them through homework problems during weekly office hours and via Piazza, an online Q&A forum.
- Streamlined course logistics for 15 weeks by releasing and grading homework assignments + final exam on Canvas, an online site for the class.

## SKILLS

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**Programming:** Julia, Python, MATLAB, Jupyter Notebooks, LaTeX, Git/GitHub

**Science:** Experimental Design, Oral Presentation, Academic Writing

**Languages:** Cantonese, Mandarin Chinese, Japanese

**Sports:** Volleyball, Bouldering, Badminton, Pickleball, Table Tennis, Basketball, Triathlon

**Digital Media Production:** Adobe Premiere Pro/Rush, Audacity, Edits

## JOURNAL PUBLICATIONS

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- [J2] R.A. Lobos, X. Wang, **R.T.L. Fung**, Y. He, D. Frey, D. Gupta, Z. Liu, J.A. Fessler, D.C. Noll. "Spatiotemporal Maps for Dynamic MRI Reconstruction.", *IEEE Transactions on Computational Imaging* (2026). DOI.
- [J1] H. Lee, C.C. Hor, L.R. Horwitz, A. Xiong, X.Y. Su, D.R. Soden, S. Yang, W. Cai, W. Zhang, C. Li, C. Radcliff, A. Dinh, **T.L.R. Fung**, I. Rovcanin, K.P. Pipe, X.Z.S. Xu, B. Duan. "A dedicated skin-to-brain circuit for cool sensation in mice.", *Nature Communications* (2025). DOI.

## CONFERENCE POSTERS

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- [C3] **R.T.L. Fung**, R.A. Lobos, J.A. Fessler, D.C. Noll, J.-F. Nielsen. "Sub 2 mm resolution fMRI at 3T using randomly undersampled 3D-EPI with locally low-rank + temporally sparse reconstruction" *International Society for Magnetic Resonance in Medicine Annual Meeting*, 2025. Digital poster #3196.
- [C2] S. Peltier, M. Egan, **R. Fung**, Q. Chen, M. Zaitsev, J.-F. Nielsen. "Harmonization of an SMS-EPI fMRI protocol using Pulseseq: Sequence implementation and ABCD QC metrics." *Organization for Human Brain Mapping Annual Meeting*, 2024. Digital poster #3804.
- [C1] Y. He, **R. Fung**, J.-F. Nielsen. "High-Accuracy Ultra-short Inner-Volume Saturation Pulse for 3D Steady-State Imaging." *International Society for Magnetic Resonance in Medicine Annual Meeting*, 2024. Digital poster #3249.

## HONORS AND AWARDS

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**James B. Angell Scholar**, University of Michigan

Mar 2021

*Students who achieve an "A" record (all grades of A+, A, or A-) for two or more consecutive terms*