

# GIA H NGO

Email: [ghn8@cornell.edu](mailto:ghn8@cornell.edu)  
Blog: <https://ngohgia.github.io/>

[Github](#)  
[Google Scholar](#)

## SUMMARY

I have a passion for building useful things, especially AI-driven tools that boost productivity and enhance lives. With several years of experience in machine learning research, I'm experienced in curating and analyzing large, complex biomedical datasets, with notable contributions recognized in leading conferences and journals. Additionally, I've had the privilege of leading teams from the validating to scaling stages of cloud-based platforms, and launching web products utilizing large language models and other generative AI approaches.

## EDUCATION

**Cornell University** 2018 - 2022  
Ph.D. in Electrical and Computer Engineering  
Thesis: Synthesis of Brain Images using Deep Learning  
Advisor: Mert R. Sabuncu  
MICCAI Young Scientist Award

**National University of Singapore** 2011 - 2015  
B.Eng in Electrical Engineering (First Class Honors)  
Minor in Technology Innovations & Entrepreneurship, Tel Aviv University

## EMPLOYMENT HISTORY

Chief Technology Officer 2022 - 2024  
[GIVE.asia](#)

- Develop the company's tech strategy for various stakeholders, including individual donors, fundraisers, and non-profit organizations (NPOs)
- Work with the engineering team to optimize the software stack and infrastructure
- Spearhead new experimental AI-related products for the philanthropic sector, including:
  - (a) [Givepedia](#): a Crunchbase for NPOs in Singapore. The directory is curated by LLMs to optimize for search engines and match user's self-declared interests and skills.
  - (b) [Sidekick AI](#): suite of AI tools for crafting ad creatives, including copy, infographics and short videos based on content of fundraisers
  - (c) Give Intel ([demo](#)): an AI-assisted data analysis tool for non-technical team members to write SQL query specific to our context using retrieval-augmented generation (RAG)

Applied Scientist 2021  
**Amazon Alexa**

- Explore possible deep learning methods to improve Alexa's Natural Language Understanding module in handling entities appearing in long dialogues
- Propose a joint optimization strategies for improving the accuracy of named entity recognition and coreference resolution on both synthetic and real dialogue data

Software Engineer 2014 - 2018  
**GIVE.asia**

- Build the MVP for a crowd-funding platform with Ruby on Rails + AngularJS + MongoDB
- Migrate the tech stack to Scala + VueJS + PostgreSQL to improve the platform's stability

Research Assistant, Clinical Imaging Research Center 2016 - 2017  
**National University of Singapore**

- Develop inference algorithms for unsupervised estimation of brain atlases
- Develop new methods to discover cognitive processes affected by psychological disorders

Software Engineer 2014  
**Project Ray**

- Prototype a mobile application for the visually handicapped to localize their positions
- Build a MVP webpage for crowd-sourcing accessibility information of public places

Research Assistant 2013 - 2015  
**Institute for Infocomm Research, Singapore**

- Develop transliteration algorithms augmented with phonology for low-resource languages such as Vietnamese, Cantonese
- Exploit hierarchical structure of logographic characters for better representational learning

## AWARDS (SELECTED)

Best Paper Winner: MICCAI Young Scientist Award	2021
Jacobs Scholar Fellowship for PhD study	2018
Best Paper Finalist: INTERSPEECH Conference	2014
ASEAN Scholarship: Full Undergrad Funding at NUS	2011 - 2015
A*STAR Scholarship: Full Secondary and Junior College Funding	2007 - 2010

## SKILLS

- Programming: Python, Typescript, Javascript, Scala, Matlab
- Frameworks: Nuxt, VueJS, Play, PyTorch, TensorFlow, Ruby on Rails, TailwindCSS
- Database: PostgreSQL, MongoDB

## PUBLIC SOFTWARE

- BrainSurfCNN: surface-based neural network for predicting individual task contrasts from resting-state functional connectivity [\[code\]](#)
- Text2Brain: neural network for synthesizing brain maps from free-form text query [\[code\]](#)
- Author-Topic model for coordinate-based neuroimaging meta-analysis [\[code\]](#)
- Phonology-augmented statistical framework for machine transliteration [\[code\]](#)
- Minimal WYSIWYG editor that supports simple, unnested JSON outputs [\[code\]](#)
- U-Net based on ResNet34 for localizing lung opacities from chest X-Ray [\[code\]](#)
- Photometric stereo to estimate an object's depth map based on pixel brightness [\[code\]](#)

## PUBLICATIONS (SELECTED)

Full publication list available in [Appendix](#) or [Google Scholar](#)

1. [GH Ngo](#) et al. (2022) Predicting individual task contrasts from resting-state functional connectivity using a surface-based convolutional network. *NeuroImage*, 248:118849 [[paper](#)][[code](#)]
2. [GH Ngo](#) & M Nguyen et al. (2021) Text2Brain: Synthesis of Brain Activation Maps from Free-Form Text Query. In *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, 605-614 [[paper](#)][[code](#)]. **Best Paper Winner: MICCAI Young Scientist Award**
3. M Khosla, [GH Ngo](#), K Jamison, A Kuceyeski, MR Sabuncu (2020) Neural encoding with visual attention. *Advances in Neural Information Processing Systems*, 33:15942-53 [[paper](#)]. **Oral Presentation**
4. [GH Ngo](#) et al. (2019) Beyond consensus: Embracing heterogeneity in curated neuroimaging meta-analysis [[paper](#)][[code](#)]
5. [GH Ngo](#) et al. (2019) Phonology-augmented statistical framework for machine transliteration using limited linguistic resources. *IEEE/ACM Transactions on Audio, Speech, and Language Processing* [[paper](#)][[code](#)]

## TEACHING & PROFESSIONAL SERVICES

Teaching Assistant for Computer Vision (ECE5470) graduate class at Cornell 2021  
Reviewer for *NeuroImage*, *MICCAI*, *Medical Image Analysis*

## TALKS

**Beacon 2023**, Unknown Frontiers: Harnessing AI for a Better Future Nov 2023  
Doing Good in the Age of AI Singapore

**VNUK**, Machine Learning Seminar Aug 2022  
Synthesis of Brain Images Using Deep Learning Da Nang, Viet Nam

**MIT**, Voxel Talk Mar 2022  
Accurate Prediction of Individual Task Contrasts from Resting-state Functional Connectivity Cambridge, MA

**INRIA**, Parietal Team Dec 2021  
Text2Brain: Synthesis of Brain Activation Maps from Free-Form Text Query Paris, France

**Massachusetts General Hospital**, Smoller Lab Nov 2021  
Synthesis of Brain Maps using Deep Learning Boston, MA

**Stanford**, Computational Neuroimage Science Laboratory Nov 2021  
Text2Brain: Synthesis of Brain Activation Maps from Free-Form Text Query Stanford, CA

**Stanford**, CS523 Research Seminar in Computer Vision and Healthcare Apr 2021  
Towards holistic encoding models for predicting fMRI responses Cambridge, MA  
to multimodal naturalistic stimuli

**OHBM**, Symposium Jun 2017  
Coordinate-Based Meta-analysis: From Consensus to Discovery Science Vancouver, Canada

## APPENDIX: PUBLICATION LIST

Source: [https://scholar.google.com/citations?user=iKBqU\\_IAAAAJ&hl=en](https://scholar.google.com/citations?user=iKBqU_IAAAAJ&hl=en)

### JOURNALS

1. GH Ngo, M Nguyen, K Jamison, A Kuceyeski, MR Sabuncu (2022) Predicting individual task contrasts from resting-state functional connectivity using a surface-based convolutional network. *NeuroImage*, 248:118849
2. M Khosla, GH Ngo, K Jamison, A Kuceyeski, MR Sabuncu (2021). Cortical response to naturalistic stimuli is largely predictable with deep neural networks. *Science Advances*, 7:eabe7547
3. M Khosla, K Jamison, GH Ngo, A Kuceyeski, MR Sabuncu (2019). Machine learning in resting-state fMRI analysis. *Magnetic resonance imaging*, 64:101-121
4. GH Ngo, SB Eickhoff, M Nguyen, G Sevinc, PT Fox, RN Spreng & BTT Yeo (2019) Beyond consensus: Embracing heterogeneity in curated neuroimaging meta-analysis. *NeuroImage*, 200:142-158
5. GH Ngo, M Nguyen, NF Chen (2019). Phonology-augmented statistical framework for machine transliteration using limited linguistic resources. *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, 27: 199-211
6. M Nguyen, GH Ngo, NF Chen (2019) Hierarchical character embeddings: Learning phonological and semantic representations in languages of logographic origin using recursive neural networks. *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, 28:461-473
7. J Wu, GH Ngo, D Greve, J Li, T He, B Fischl, SB Eickhoff, BTT Yeo (2018) Accurate non-linear mapping between MNI volumetric and FreeSurfer surface coordinate systems. *Human Brain Mapping*, 39:3793-3808

### FULL LENGTH REFEREED CONFERENCE PAPERS

1. GH Ngo, M Nguyen, NF Chen, MR Sabuncu (2021) Text2Brain: Synthesis of Brain Activation Maps from Free-Form Text Query. International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI), 605-614 (**Best Paper Winner: MICCAI Young Scientist Award**)
2. M Nguyen, GH Ngo, NF Chen (2021) Domain-Shift Conditioning Using Adaptable Filtering Via Hierarchical Embeddings for Robust Chinese Spell Check. *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, 29:2027-2036
3. GH Ngo, M Khosla, K Jamison, A Kuceyeski, MR Sabuncu (2020) From connectomic to task-evoked fingerprints: Individualized prediction of task contrasts from resting-state functional connectivity. *MICCAI*, 62-71 (**Oral**)
4. M Khosla, GH Ngo, K Jamison, A Kuceyeski, MR Sabuncu (2020) Neural encoding with visual attention. *Advances in Neural Information Processing Systems*, 33:15942-53 (**Oral**)
5. M Khosla, GH Ngo, K Jamison, A Kuceyeski, MR Sabuncu (2020) A shared neural encoding model for the prediction of subject-specific fMRI response. *MICCAI*, 539-548
6. M Nguyen, GH Ngo, NF Chen (2018) Multimodal neural pronunciation modeling for spoken languages with logographic origin. *Proceedings of Empirical Methods in Natural Language Processing (EMNLP)*

7. M Nguyen, GH Ngo, NF Chen (2019) Isolating the Effects of Modeling Recursive Structures: A Case Study in Pronunciation Prediction of Chinese Characters. In Proc 2019 Workshop on Widening NLP, 95-97
8. S Singhanian, M Nguyen, GH Ngo, Chen NF (2018) Statistical machine transliteration baselines for news 2018. In Proc Seventh Named Entities Workshop 2018, 74-78
9. GH Ngo, SB Eickhoff, PT Fox, BTT Yeo (2016) Collapsed variational bayesian inference of the author-topic model: application to large-scale coordinate-based meta-analysis. In Proc Int Workshop on Pattern Recognition in Neuroimaging (PRNI) ([Oral](#))
10. M Nguyen, GH Ngo, Chen NF (2016) Regulating orthography-phonology relationship for English to Thai transliteration. In Proc Sixth Named Entity Workshop, 2016:83-87
11. GH Ngo, NF Chen, M Nguyen, B Ma, H Li (2015) Phonology-augmented statistical transliteration for low-resource languages. In Sixteenth Annual Conference of the International Speech Communication Association (INTERSPEECH) ([Best Paper Finalist](#)).
12. GH Ngo, NF Chen, S Sivadas, B Ma, H Li (2014) A Minimal-Resource Transliteration Framework for Vietnamese. INTERSPEECH
13. NF Chen NF, S Sivadas, BP Lim, GH Ngo, H Xu, B Ma, H Li (2014) Strategies for Vietnamese keyword search. In Proc IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 4121-4125)