# E M V NAGA KARTHIK

@ muni-venkata-naga-karthik.enamundram.1@ens.etsmtl.ca  Montréal, Canada  naga-karthik.github.io

## OBJECTIVE

Goal-oriented and self-motivated master's student with the knowledge of mathematical fundamentals for machine learning and experience in medical image processing With my technical abilities, I aspire to advance my knowledge in the field and make machine learning models more interpretable and explainable, by engaging with experts and collaborating with my peers.

## EDUCATION

### M.A.Sc in Electrical Engineering

**École de Technologie Supérieure**

Expected: May 2021  Montréal, Canada

- Current GPA: 4.3/4.3

### B.Tech in Electronics and Communication Engineering with Minor in Mathematics

**Shiv Nadar University**

2015 - 2019  Greater Noida, India

- Cumulative GPA: 9.19/10.00

## PUBLICATIONS

- Journal Article
  - **Naga Karthik, E.,M.,V.**, Karimi, E., Lulich, S.M., Laporte, C. "Automatic Tongue Surface Extraction from Three-Dimensional Ultrasound Vocal Tract Images". *The Journal of Acoustical Society of America*, 147(3), 2020, pp. 1623-1633. (Paper)

- Conference Proceedings and Abstracts
  - **Naga Karthik, E.,M.,V.**, Laporte, C., Cheriet, F. "Three-dimensional Segmentation of the Scoliotic Spine from MRI using Unsupervised Volume-based MR-CT Synthesis". In *Proceedings of SPIE Medical Imaging*, 2021, pp. 1-8. (Oral Presentation) (Peer-reviewed) (Preprint) (Presentation)
  - Lulich, S., M., **Naga Karthik, E., M., V.**, Laporte, C., (2020, October), "Automatic Tongue Surface Extraction from 3D Ultrasound using 3D SLURP", Abstract Presented at UltraFest IX: Ultrasound Imaging for Speech and Language Virtual Conference. (Abstract)

- Book Chapter
  - **Naga Karthik, E.M.V.**, Gopal, M. "Extraction of the Features of Fingerprints using Conventional Methods and Convolutional Neural Networks". In Srinivas, M., Sucharita, G., Matta, A. (Eds.) *Machine Learning: Algorithms and Applications*, Wiley Scrivener, 2020. (In Press)

## RESEARCH INTERESTS

Machine Learning | Mathematics | Bayesian Uncertainty Estimation | Medical Image Analysis | Computer Vision

## EXPERIENCE

### Undergraduate Research Intern

**École de Technologie Supérieure**

May 2018 – August 2018

**Topic: Automatic Detection of the Tongue Surface in 3D Ultrasound Images**

- Worked with my supervisor Prof. Catherine Laporte and a then Master's student to detect and extract the surface of the tongue from raw 3D ultrasound (US) images.
- Applied the concepts of 3D phase symmetry and active surfaces in the context of 3D US images of the tongue by developing the necessary codes in MATLAB.
- Work done in collaboration with the Speech and Hearing Sciences Department, Indiana University, Bloomington.

### Undergraduate Research Intern

**Indian Institute of Technology Bombay**

May 2017 – July 2017

**Topic: Tomographic Reconstruction**

- Worked under the supervision of Prof. Ajit Rajwade at the Department of Computer Science and Engineering.
- Adapted the concepts of filtered back projection (FBP), dictionary learning and conjugate gradient methods to reconstruct computed tomography (CT) images of a walnut.

### Undergraduate Teaching Assistant

**Shiv Nadar University**

Aug. 2018 – Dec. 2018

**Course: Introduction to Robotics**

- Conducted experiments with basic robot movement such as the line follower, obstacle avoider and Proportional Integral and Derivative (PID) control.
- Engaged with the students in their experiments during the class hours and assisted the instructor in grading.

## GRADUATE COURSES

- Probabilistic Graphical Models - MILA/Université de Montréal
- Learning Representations - MILA/Université de Montréal
- Fundamentals of Computer Graphics - McGill Univeristy

## HONORS & AWARDS

**Master's Tuition Fee Exemptions**

- Fall 2020 semester (5,100 CAD)
- Summer 2020 semester (4,460 CAD)
- Winter 2020 semester (3,470 CAD)

**ÉTS Internal Scholarship (5,000 CAD)**

**ÉTS Research Internship Travel and Subsistence Allowance (4,200 CAD)**

**Undergraduate Dean's List Mentions**

- Monsoon 2018 Semester
- Spring 2018 Semester
- Monsoon 2017 Semester

## OTHER SKILLS

**Sports/Athletics**

- **Winner** of the Shiv Nadar University Sports League (SNUSL) Table Tennis Championship, an intra-university tournament held every academic year between 6 different teams. February 2019
- **Winner** of the SNUSL Table Tennis Championship. January 2018
- **Best player** award in SNUSL Table Tennis Championship for the academic year 2017-18. January 2018
- **Winner** of the Banyan League Table Tennis Championship - annual tournament held between Shiv Nadar University, Ashoka University, O.P. Jindal Global University and BML Munjal University. September 2019

**Languages**

- **Expert:** English
- **Intermediate:** Hindi, Telugu
- **Novice:** French

## TECHNICAL SKILLS

**Programming Languages**

- Python

**Markup Languages**

- LaTeX, Markdown, HTML

**Specialized Libraries**

- PyTorch, Keras, PyMC3

**Specialized Software**

- MATLAB, Slicer3D

## VOLUNTEER EXPERIENCE

Student Reviewer

**École de Technologie Supérieure**

October 2019 – Present

**Service d'Aide à la Rédaction d'Articles (SARA)**

- SARA is a scientific community at ÉTS aiming to help graduate researchers better the art of academic writing.
- Volunteered for two paper-review requests, which involved the tasks of critically analyzing the authors' papers and providing insightful comments on the clarity and expression of their work.
- Cultivated the skill of critiquing my own writing from a reviewer's perspective.
- Learned the importance of constructive criticism.