Mert İnan

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Education

- **Carnegie Mellon University** — Pittsburgh, PA
  M.Sc. in Computational Biology (School of Computer Science) — *2018 – present*
  - Cumulative QPA: 3.87/4.00
  - Research Track, Advisor: Prof. Tai-Sing Lee
  - Relevant courses: Ph.D.-Level Machine Learning, Deep Learning, Neural Computation, Advanced Systems Neuroscience, Biological Modelling & Simulation, Advanced Algorithms
- **Bilkent University** — Ankara, Turkey
  B.Sc. in Computer Science — *2014 – 2018*
  - Cumulative GPA: 3.83/4.00
  - Graduated **second** in rank, with Summa Cum Laude. Top 1%.
  - Relevant courses: Introduction to Machine Learning, Algorithms for Big Data, Theory of Computation, Algorithms, Optimization, Computer Organization
- **École Polytechnique Fédérale de Lausanne (EPFL)** — Lausanne, Switzerland
  Exchange in Computer Science — *Jan 2017 – Sep 2017*
  - One year study and internship exchange. Granted research position in a neuroscience lab.
  - Relevant courses: Signal Processing for Communications, Neuroscience for Engineers

Publications, Posters & Manuscripts

1) Thomas A. W. Bolton, Younes Farouj, **Mert Inan**, Dimitri Van De Ville, *Structurally-Informed Deconvolution of Functional Magnetic Resonance Imaging Data.* IEEE ISBI (2019). DOI: `10.1109/ISBI.2019.8759218`

2) Thomas A. W. Bolton, **Mert Inan**, Dimitri Van De Ville, *Revealing directional cross-regional functional interplays with sparse coupled hidden Markov models.* [Poster M752] OHBM (2019). E-Poster: `https://files.aievolution.com/hbm1901/abstracts/52301/M752_Bolton.pdf`

3) **Mert Inan**, Yimeng Zhang, Wenhao Zhang, Tai-Sing Lee, *A Comparison Between Feedback and Local Network Gated Boltzmann Machines in relation to Association Field and Sparse Coding.* [Master's thesis, manuscript in preparation]

Research & Teaching Experience

- **Deep Learning in Visual Cortex** — Carnegie Mellon University
  Graduate Research Assistant, ***Prof. Tai-Sing Lee*** — *Dec 2018 – present*
  - Modeled visual cortex V1 using Mean-Field Restricted Boltzmann Machines with sparse coding. Found the bug of high DC issue in the previous model.
  - Supported by an NSF grant.
- **Human Functional MRI & Machine Learning** — EPFL & Campus Biotech
  Undergraduate Research Intern, ***Prof. Dimitri Van de Ville*** — *Aug 2017 – Sep 2017*
  - Improved and implemented Markov models to understand neural connections between different parts of the brain in fMRI scans.

- **Reaction-Diffusion on BioNetGen** — Carnegie Mellon University
  Graduate Research Assistant, ***Asst. Teach. Prof. Phillip Compeau*** — *May 2019 – Oct 2019*
  - Implemented a reaction diffusion system similar to Gray-Scott and visualized it in 3D using BioNetGen and CellBlender. Created a teaching module explaining the steps.
  - Supported by an NIH grant.
- **Introduction to Deep Learning Course TA** — Carnegie Mellon University
  Graduate Teaching Assistant, Computer Science Department — *Jan 2020 – May 2020*
- **Computational Perception Course TA** — Carnegie Mellon University
  Graduate Teaching Assistant, Computer Science Department — *Aug 2019 – Dec 2019*
- **Tumor detection in MRI** — Bilkent University
  Undergraduate Researcher, ***Prof. Çiğdem Gündüz Demir*** — *Jan 2018 – May 2018*
  - Implemented symmetrical connected component analysis on structural MRI data of patients with brain tumors from Gazi University Hospital.

Selected Course Projects

- **Etymøn** — Prof. Mehmet Koyutürk
  http://etymon.org — *Sep 2017 – present*
  - Implemented a web system that finds and visualizes etymological connections from 200 languages. Found missing word etymologies using deep learning units of LSTMs.
- **ChiGAN** — Prof. Bhiksha Raj
  https://github.com/Merterm/ChiGAN — *Aug 2019 – Dec 2019*
  - Analyzed chemical structure of flavor in food datasets. Implemented generative adversarial networks (GANs). Discovered novel, feasible flavor compounds.
- **Semi-Supervised Classification of EEG Signals** — Asst. Prof. Leila Wehbe
  https://github.com/Merterm/Semi-Supervised-EEG — *Jan 2019 – May 2019*
  - Implemented semi-supervised algorithms such as TSVM and QSVM to find mental states of an individual, based on their brain-wave signals. Improved on current supervised models.
- **Protein Interactome Clustering** — Asso. Prof. Mustafa Özdal
  https://github.com/Merterm/Protein-Interactome-Clustering — *Feb 2018 – May 2018*
  - Implement an ensemble model combining InfoMap, Louvain Modularity and k-clique methods to cluster overlapping worm protein interactome data.
- **Brilliantly Radical Artificially Intelligent Neural Machine (BRAIN:M)**
  http://merterm.github.io/BRAIN-M/ — *Sep 2015 – May 2016*
  - Constructed a neuromorphic chip on an FPGA. Trained it on hand-gestures using ultrasound sensors. Implemented hebbian learning with energy.

Awards, Grants & Honours

Fulbright Master's Grant (U.S. Department of State) ($100 000) . . . . . 2018 – 2020
Merit Fellowship (Carnegie Mellon University) ($9 000) . . . . . 2018 – 2020
Summa Cum Laude (Bilkent University) 2018
Merit Scholarship (Bilkent University) (₺70 000) . . . . . 2015 – 2016
High Honor Student (Bilkent University) . . . . . 2014 – 2018

Skills, Toolkits & Languages

- **Computational Toolkit:** PyTorch, TensorFlow, Python, MATLAB, C, C++, Java, Go, Bash, Linux, SLURM, tmux, vim, CUDA, Blender, CellBlender, mcell, BioNetGen, HTML/XML, SQL, JavaScript
- **Human Languages:** Türkçe, English, Français, 日本語, 中文, ქართული