Kamyar Nazeri

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EDUCATION

MSc. in Modeling & Computational Science Jan. 2017 - EGD: May. 2019
University of Ontario Institute of Technology Oshawa, ON Canada
Graduate Courses: Machine Learning, Deep Learning in Computer Vision, Numerical Analysis, Agent-Based Modeling, High-Performance Computing, Mathematics of Image Processing. (GPA: 3.88)

BSc. in Electrical Engineering - Control Sep. 1999 – Jul. 2004
Isfahan University of Technology Isfahan, Iran

Diploma. in Mathematics & Physics Sep. 1996 – Apr. 1999
Harati High-School Isfahan, Iran

TECHNICAL PROFICIENCIES

Languages: Python, C++, C#, JavaScript, TypeScript, Node.js, ASP.net, and SQL

Frameworks/Libraries: PyTorch, TensorFlow, Matlab, NumPy, SciPy, Scikit-Learn, Keras, OpenCV

Research Interests: My research interests mainly lie in the areas of computer vision, image processing, deep learning, and generative models. In particular, I have been working on structured deep learning for image enhancement, image inpainting, super-resolution, and image registration.

PUBLICATIONS

K. Nazeri, E. Ng, T. Joseph, F. Qureshi, and M. Ebrahimi (Nov. 2018) **EdgeConnect: Generative Image Inpainting with Adversarial Edge Learning.** *A "lines first, color next" inpainting model inspired by artists work.* arXiv: 1901.00212

K. Nazeri, E. Ng, and M. Ebrahimi (Jul. 2018) **Image Colorization with Generative Adversarial Networks.** *Springers Lecture Notes in Computer Science, volume 10945, pp. 85-94, Proceedings of tenth international conference on Articulated Motion and Deformable Objects (AMDO),* Palma, Mallorca, Spain. arXiv: 1803.05400

K. Nazeri, A. Aminpour, and M. Ebrahimi (Jun. 2018) **Two-Stage Convolutional Neural Network for Breast Cancer Histology Image Classification.** *Springers Lecture Notes in Computer Science, volume 10945, pp. 717-726. Proceedings of International Conference on Image Analysis and Recognition (ICIAR),* Póvoa de Varzim, Portugal. arXiv: 1803.04054

K. Nazeri (May. 2018) **Effect of Social Media on Opinion Formation.** *Effect of social media on the process of opinion formation in a human population modeled as an external field in the dynamics of the Sznajd model.* arXiv: 1805.08310

RESEARCH PROJECTS

Single Image Super-Resolution through Edge Matching *(MSc. Thesis)*

A deep learning model for Single Image Super-Resolution based on a novel edge matching loss. The proposed optimization objective is based on deep feature matching and fast computation of Hausdorff distance between edge-maps extracted from the output of a pretrained egde-generator network. The focus of this research is on reconstruction of the high-frequency information while preserving realistic textures in the HR image which makes our model capable of generating high-quality images at very high magnification ratios.

Unsupervised Deformable Image Registration using Cycle-Consistent Adversarial Networks

A learning-based non-rigid 2D image registration model applied to medical imaging applications. Instead of pixel-wise registration distance measures, our model learns the displacement vector field that warps a moving image to a fixed image and its inverse mapping in a cycle-consistent adversarial setting. The proposed model does not require ground truth vector fields for training and has a performance comparable to conventional image registration.

Generative Image Inpainting with Adversarial Edge Learning

A "lines first, color next" image inpainting model inspired by artists work. We propose a two-stage inpainting model in an adversarial setting that comprises of an edge generator to hallucinate edges of the missing region followed by an image completion network that fills in the missing regions using edges as a priori. Our model outperforms current state-of-the-art techniques quantitatively and qualitatively. | https://github.com/knazeri/edge-connect

WORK EXPERIENCE

Teaching Assistant Jan. 2017 - PRESENT

Faculty of Science, University of Ontario Institute of Technology ON, Canada.

Tutored weekly tutorial sessions, held office hours and marked assignments and papers throughout the semester for the following courses:

- Math 1000, Calculus for Science, Fall 2018
- Math 1010, Calculus I for Engineering, Fall and Winter 2017
- Math 1020, Calculus II for Engineering, Winter and Spring 2018
- Math 2050, Linear Algebra for Engineering, Spring 2017

Technical Manager Mar. 2012 - Dec. 2016

RaeenSystem Company Tehran, Iran.

- Evaluated and interviewed candidates for technical positions.
- Acted as a technical manager of the company's Products and Services department.
- Involved in the design team of the company's distributed financial web application.
- Worked as a lead system engineer in software/hardware integration of equipment for hospitality, retail, and travel industries including applications to door locks, IP-TVs, card swipes, and mini-bars systems.

Senior Developer Feb. 2007 - Mar. 2012

RaeenSystem Company Tehran, Iran.

- Designed and developed company's Web Framework.
- Developed and maintained company's web components.
- Worked as a senior software developer on a financial web application for Iran Touring and Tourism Investment Company, localized in over 100 cities in the country.

Software Developer Apr. 2000 - Dec. 2006

ExirSoft Company Isfahan, Iran.

- Joined as a team member of the first Persian e-commerce websites launched at 2000 and working as a developer in 5 subsequent releases of the website until 2006 | http://persianflora.com
- Designed and developed content management systems for business web applications.
- Worked as a team-lead for 1 year in company's products including, Live Help system and Website Statistics.

CERTIFICATES

Machine Learning: Online course by Stanford University on Coursera.

Neural Networks and Deep Learning: Online course by deeplearning.ai offered through Coursera.

Structuring Machine Learning Projects: Online course by deeplearning.ai offered through Coursera.

EXTRA ACTIVITIES

StackOverflow Nov. 2011 - PRESENT

A developer question/answer website which I spend my free time to contribute, explore and learn new techniques.
http://stackoverflow.com/users/1041321/knazeri

CodeProject Oct. 2007 - PRESENT

A community of software development I visit often to learn, to teach and to have fun programming.
http://codeproject.com/members/kamyar-nazeri