

Ramin Fahimi

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Research Interests

Visual computing and computer graphics, with special interests in geometric modeling, shape analysis, 3D vision, geometric deep learning

Education

University of Manitoba

Master of Science in Computer Science, Supervisor: Prof. Neil D.B Bruce

Computer Vision

Sep 2016 – 18

Iran University of Science and Technology

Bachelor of Science in Computer Engineering

Hardware Engineering

Sep 2011 – 15

Experiences

Work Experiences

AI Scientist

Industrial Skyworks - Qii.ai

Feb 19 - Now

- *Developing cutting-edge artificial intelligence and computer vision products.*
- *Engaging with key stakeholders to understand project requirements.*
- *3D Reconstruction & creating digital twin*
 - Developed an internal structure from motion engine for various business requirements.
 - Developed a distributed and scalable pipeline for processing drone images (RGB/Thermal) and 3D reconstruction.
 - Automatic quality assessment for the pipeline.
 - Developing a live dashboard that supports manual quality verification.
- *Temporal alignment and change detection*
 - Deep learning based **Point Cloud Alignment** supporting large scale point clouds (+10M)
 - Optimized for an accuracy of up to **10cm**.
- *Camera re-localization*
 - Deep learning based RGB camera re-localization for registering close/ground shots
- *Smart annotation, Object Segmentation/Detection.*
 - Training Neural Networks for detecting **marine corrosion, rust and crack**.
 - Smart **Interactive segmentation** using users clicks and supporting different data modalities.
 - **Continual learning** for actively adapting to domain shifts for interactive-segmentation
 - Developed anomaly detection/classification products.
- *Self-supervised representation learning*
 - Data reduction and **Surface Overlap Estimation** using Self-supervised learning.
 - Keyframe selection to reduce inspection time.
- *Deployment of machine learning models using **Docker containers, Kubeflow, Kubernetes***

Research Assistant at **Ryerson VisionLab**

Research on Feature binding, segmentation and adversarial perturbations

Nov 18 - Feb 19

Research consultant at **Inuktun Services**

Visual odometry and SLAM solutions for inspection robots in gas pipes

Jan 17 - Jan 18

Research Assistant at **Computer Vision Lab**

Research on visual attention, deep learning, scene understanding(semantics and geometry)

Sep 16 - Nov 18

Research Engineer at **SystemNegar**

AI as service (DeepFace.ir - Deeptext.ir - Mirad.ir)

Sep 15 - Sep 16

Research Assistant [Social Network Lab](#)

Study of homophily (love of the same) based on visual contents

Sep 15 - Sep 16

Summer Intern at [Social Network Lab](#)

Designing a distributed pipeline for crawl, store and post-processing

Summer 2015

Web developer at [IUMS](#)

Designing a web-based survey system using flask, sqlite, bootstrap

Feb 15 - Apr 15

Computer skills

ML Frameworks:

Pytorch, Keras, Caffe, Tensorflow, ONNX, LibSVM, XGBoost

Programming:

Python, C++, MATLAB, Javascript, Bash, Assembly, SQL

System Orchestration & Workflow design:

Kubernetes, Docker, Argo, Kubeflow, Helm, Terraform

Data Storage:

Kafka, MongoDB, Redis, Mysql, DynamoDB, SQLAlchemy

Data Analysis:

PCL, Open3D, OpenCV, sklearn, skimage, Pandas, spaCy, NLTK, Scrapy

Photogrammetry & SLAM:

Pix4D, Metashape, Meshroom, 3D Zphyer, COLMAP, Google Cartographer, DSO, ORBSLAM

Data Visualization:

Matplotlib, PyPlot, NetworkX, Gephi, Graphviz, D3JS, Potree

Web Development:

Flask, Django, Celery, Bootstrap, JQuery

Hardware Eng:

Embedd systems: Nvidia TX2, Raspberry PI | FPGA: VHDL, VLSI

System admin:

Linux, ROS, AWS, git, Nginx, Server/Network administration

Awards

University of Manitoba Graduate Students' Association travel grant

2019

Graduate Enhancement of Tri-Council Stipends (GETS)

2016-18

International graduate student entrance scholarship (IGESS), UManitoba

2016

Publications

Fahimi, Ramin and D.B Neil Bruce. On metrics for measuring scanpath similarity. *Behavior research methods*, 10 August 2020.

Seyed Shahabeddin Nabavi, Mehrdad Hosseinzadeh, **Fahimi, Ramin**, and Yang Wang. Unsupervised learning of camera pose with compositional re-estimation. In *The IEEE Winter Conference on Applications of Computer Vision*, pages 11–20, 2020.

Calden Wloka, Toni Kunić, Iuliia Kotseruba, **Fahimi, Ramin**, Nicholas Frosst, Neil DB Bruce, and John K Tsotsos. Smiler: Saliency model implementation library for experimental research. *arXiv preprint*, 2018.

Feature binding, segmentation and adversarial perturbations. In *The IEEE Winter Conference on Applications of Computer Vision (under review)*, 2019.

Ramin Fahimi. Sequential selection, saliency and scanpaths. Master's thesis, University of Manitoba, 2018.