RAMRAJ CHANDRADEVAN

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OBJECTIVE

Actively looking for full time research opportunities in the areas of Information Retrieval, NLP, Computer Vision, Multimodal (Vision-Language), or Data Science.

EDUCATION

PhD in Computer Science and Informatics Aug. 2019 - Present
Information Retrieval(IR) Lab, Emory University, Atlanta, GA

BSc.(Hons) in Electronic and Telecommunication Engineering Nov. 2014 - Dec. 2018
Faculty of Engineering, University of Moratuwa, Sri Lanka GPA : **3.80**/4.20 **First class(Honours)**

Private Pilot Licensing (PPL) Jan. 2016 - Jun. 2017
Skyline Aviation, Ratmalana, Sri Lanka

SKILLS

Fields : Information Retrieval, NLP, Computer Vision, Vision-Language, Data mining, Robotics, Deep Learning.
Tools : Python, C++, Java, PyTorch, TensorFlow, Keras, Theano, Dask, Docker, Git, MATLAB, R, RStudio, ITK.

EXPERIENCE

Research Intern — Microsoft Redmond, WA
Visual Document Intelligence Team *May. 2023 - Sept. 2023*
- Instruct-OCR (Instruction Following Transformer OCR): Pre-trained transformer-based OCR models to augment their functionality for a wide range of tasks.

Data Scientist Intern — Home Depot remote: Summer + Fall part-time
Online Recommendations Team *Jun. 2022 - Sept. 2022*
- Implemented session-based content recommendation system for products and articles.

Applied Scientist Intern — Amazon Sunnyvale, CA
Alexa Local Information Science Team *Jun. 2021 - Sept. 2021*
- Design, implementation, and experimentation on semantic retrieval over local search queries to increase recall.

Research and Development Intern — Kitware, Inc Chapel Hill, NC
Medical Computing Team *Feb. 2019 - Jul. 2019*
- Applied Deep Learning and Machine Learning techniques in Computer Vision and Image Processing applications.

Undergraduate Research Intern — CooperLab, Emory University Atlanta, GA
Department of Biomedical Engineering and Bioinformatics *Jun. 2017 - Dec. 2017*
- Applied Deep Learning techniques to learning-to-rank problem in survival analysis.

Software Developer Intern — Foysonis WMS Carry, NC
Warehouse Management System - Startup *Jul. 2016 - Mar. 2017*
- Designed home web-page, blog web-page, and payment gateway integration.

PROJECTS

Cross-lingual Decompositional Analysis and Retrieval *PhD Research Project* — Sep 2019 - May 2023
- Worked on diverse research problems in IR: cross-lingual and multi-lingual information retrieval, neural query expansion, query-by-example, neural entity ranking, and information extraction for IR.

VQA using Scene Graph Generation *Research Project* — Sep 2020 - Apr 2021
- Improved the VQA performance using question guided graph enhancement and pruning and Conditional Enhanced Graph ATtention network (CE-GAT).

Multiple Instance Learning on Nuclei Detection @GitHub *Internship at Kitware* — Feb. 2019 - Jun. 2019
- Implemented an end-to-end generic nuclei detection pipeline in large scale, parallel systems. @Published Blog

Tooth Micro Crack Detection @GitHub *Internship at Kitware* — Sep. 2019 - Present
- Implementing a machine learning pipeline along with signal processing techniques (Wavelet transform & Phase analysis).

WBC Cell Detection and Classification @GitHub *Senior Project Thesis* — Mar. 2018 - Jan. 2019

- Implemented and evaluated an end-to-end pipeline to bounding box detect and classify cancerous white blood cells.

TFSurvivalNet Implementation @GitHub *Internship at Cooper Lab* — Aug. 2017 - Nov. 2017

- Re-implemented Theano based SurvivalNet to TensorFlow-Slim based framework and Dockerized the package.

PUBLICATIONS

- **Ramraj Chandradevan**, Kaustubh D Dhole, and Eugene Agichtein. 2024. "*Fine-tuning a Pretrained Neural Ranker Found Harmful: Investigating the Effectiveness of Domain Adaptation for Ranking.*" Submitted to SIGIR 2024.
- **Ramraj Chandradevan**, Kaustubh D Dhole, and Eugene Agichtein. 2024. "*DUQGen: Effective Unsupervised Domain Adaptation of Neural Rankers by Diversifying Synthetic Query Generation.*" Submitted to NAACL 2024.
- Kaustubh D Dhole, **Ramraj Chandradevan**, and Eugene Agichtein. 2024. "*Generative Query Reformulation Using Ensemble Prompting, Document Fusion, and Relevance Feedback.*" Submitted to NAACL 2024.
- Kaustubh D Dhole, **Ramraj Chandradevan**, and Eugene Agichtein. 2023. "*An Interactive Query Generation Assistant using LLM-based Prompt Modification and User Feedback.*" arXiv preprint. https://arxiv.org/pdf/2311.11226.pdf
- **Ramraj Chandradevan**, Eugene Yang, Mahsa Yarmohammadi, and Eugene Agichtein. 2022. " *Learning to Enrich Query Representation with Pseudo-Relevance Feedback for Cross-lingual Retrieval.*" In **SIGIR '22**: The 45th International ACM SIGIR Conference on Research and Development in Information Retrieval, July 11–15, 2022, Madrid, Spain. ACM, New York, NY, USA, 5 pages. https://dl.acm.org/doi/10.1145/3477495.3532013
- Eugene Yang, Suraj Nair, **Ramraj Chandradevan**, Rebecca Iglesias-Flores and Douglas Oard. 2022. " *C3: Continued Pretraining with Contrastive Weak Supervision for Cross Language Ad-Hoc Retrieval.*" In **SIGIR '22**: The 45th International ACM SIGIR Conference on Research and Development in Information Retrieval, July 11–15, 2022, Madrid, Spain. ACM, New York, NY, USA, 5 pages. https://arxiv.org/pdf/2204.11989.pdf
- **Ramraj Chandradevan**, Sai Vidyaranya Nuthalapati, Eleonora Giunchiglia, Bowen Li, Maxime Kayser, Thomas Lukasiewicz, Carl Yang. 2021. " *Lightweight Visual Question Answering using Scene Graphs.*" In Proceedings of the 30th ACM International Conference on Information and Knowledge Management (**CIKM '21**), November 1–5, 2021, Virtual Event, QLD, Australia. ACM, New York, NY, USA, 5 pages. https://dl.acm.org/doi/abs/10.1145/3459637.3482218
- **Ramraj Chandradevan**, Ahmed A. Aljudi, Bradley R. Drumheller, Nilakshan Kunananthaseelan, Mohamed Amgad, David A. Gutman, Lee A. D. Cooper, David L. Jaye. "*Machine-Based Detection and Classification for Bone Marrow Aspirate Differential Counts: Initial Development Focusing on Nonneoplastic Cells.*" Laboratory Investigation (Sep 30 2019).https://www.nature.com/articles/s41374-019-0325-7
- Jared Vicory, **Ramraj Chandradevan**, Pablo Hernandez-Cerdan, Wei Angel Huang, Dani Fox, Laith Abu Qdais, Matthew McCormick, Andre Mol, Rick Walter, J. S. Marron, Hassem Geha, Asma Khan, Beatriz Paniagua. "*Dental microfracture detection using wavelet features and machine learning.*" In: Isgum I, Landman BA, editors. Medical Imaging 2021: Image Processing. Washington, DC: International Society for Optics and Photonics; 2021, 115961R. Link @URL.
- Yousefi Safoora, Amirreza Shaban, Mohamed Amgad, **Ramraj Chandradevan**, Lee AD Cooper. "*Learning Clinical Outcomes from Heterogeneous Genomic Data Sources.*" (2019). Link @URL.
- *Early Experience in Developing a Machine-Learning and Digital Pathology Approach to Automate Bone Marrow Differential Counts.* Oral presentation at ACLPS 2018.