Paul Janson

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RESEARCH INTERESTS

My research interest lies in the conjunction of computer vision and deep learning. Particularly I am interested in the performance of deep learning based vision models in the 'wild'. I am focusing on removing the current limitations of deep learning based computer vision models such as their dependency on supervision and independent and identically distributed (iid) data. I conduct research in the combined areas of continual learning, zero-shot learning and domain generalization.

EDUCATION

- **University of Moratuwa** — Moratuwa, Sri Lanka
  *Bachelor of Science in Computer Science and Engineering- **GPA: 3.90/4.2** (First class) Nov 2018 - Jun 2023*

RESEARCH EXPERIENCE

- **University of Moratuwa** — Moratuwa, Sri Lanka
  Undergraduate Thesis - Advisor: Dr.Thanuja Ambegoda — *Oct 2022 - Present*
  - **Generalizing Neural fields using Meta learning**: Working on a meta learning based approach that helps to generalize neural fields to be able to reconstruct 3D object with single view. (view proposal)

- **King Abdullah University of Science and Technology** — Thuwal, Saudi Arabia
  Research Intern - Advisor: Dr.Mohamed Elhoseiny — *Jan 2022 - Nov 2022*
  - **Continual zero-shot learning with semantically guided generative random walks**: Developed a method that combines creativity-based and semantically guided random walk-based losses in continual zero-shot learning. To avoid the usage of unseen class semantic information at training time.
  - **A simple baseline that questions the use of pre-trained models in continual learning**: Developed a simple model based on the Nearest mean classifier that shows great performance on standard continual learning benchmarks questioning the usage of continual learning on simple benchmarks. (view paper)
  - **Domain Aware continual zero-shot learning**: Developed a continual zero-shot learning model with domain robustness using adversarial training. Tested its application on the classification of animals in the wild using camera trap images.

- **ScholarX Mentorship Programme** — Remote
  Mentee — *May 2021 - Nov 2021*
  - **Vision Transformers for continual learning**: Performed an independent study to use vision transformer architecture in continual learning. Developed a dynamically expanding architecture with compact transformer modules (view) (slides)

PUBLICATIONS

- **A simple baseline that questions the use of pre-trained models in continual learning**:
  Accepted at NeurIPS 2022 Workshop on Distribution Shifts (view)
  Paul Janson, Wenxuan Zhang, Rahaf Aljundi, Mohamed Elhoseiny

- **Continual zero-shot learning through semantically guided generative random walk**:
  In review
  Wenxuan Zhang, **Paul Janson** Divyansh Jha, Kai Yi, Ivan Skorodov, Mohamed Elhoseiny

- **Domain aware continual zero-shot learning**:
  In review
  Kai Yi, **Paul Janson**, Mohamed Elhoseiny

Teaching experience

- **University of Moratuwa**   Moratuwa, Sri Lanka
  Teaching Assistant   *Aug 2022 - Present*
    - **Theory of Computing**: Worked in grading assignments and exams of undergraduate students

Professional Experience

- **Yarl IT Hub**   Jaffna, Sri Lanka
  Intern   *Feb 2018 - Oct 2018*
    - **Aki E learning platform**: Worked in content creation and website administration

Relevant Courseworks

- **Linear Algebra**: A+

- **Applied Statistics**: A+

- **Calculus**: A

- **Differential equations and applications**: A+

- **Intelligent Systems (AI)**: A+

- **Research and report writing**: A+

Skills and Standardized Tests

- **Programming Languages**: Python,Javascript,Java

- **Deep/Machine learning tools**: Pytorch,Scikit-learn,Pandas,Numpy
- **TOEFL iBT**: 106/120

- **General computing**: UNIX , SLURM

- **Experiment tracking**: WandB

Scholarships and Awards

- **Appeared in Dean's honors list for 5 semesters** :   2018-2022

- **Mahapola Merit Scholarship for Undergraduate education**: 2018-2022

- **Bank of Ceylon Nanajaya Scholarship for Undergraduate education** : 2018-2022

- **POH Scholarship by Zagro Asia Limited,Singapore for Undergraduate education** :   2018-2022

- **Dialog Merit Scholarship for Undergraduate education** :   2018-2022

- **Governors Award for best performance in GCE A/L (3rd in the country)** :   2017

Volunteering and Professional service

- **Student representative for CSE department**: 2019-2020

- **Volunteer translator for open.uom.lk**: 2022

- **Volunteer at Yarl IT hub non profit organization**: 2018-2022