Manish Shetty M

Research Fellow, Microsoft Research India
@ mmshetty.98@gmail.com | https://manishshettym.github.io

Education

- **PES University, Bangalore** *Aug'16 – May'20*
  B.Tech in Computer Science and Engineering (*Honors*) — *Specialization in Data Science*
  Cum. GPA: **9.51**/10
  Dr. MRD Merit Scholarship & **Prof CNR Rao Scholarship** (top 2%) for academic performance.

Work Experience

- **Microsoft Research, Bangalore, India** *July'20 – Present*
  Research Fellow
  Advisor: Chetan Bansal, Dr. Nachiappan Nagappan, and Dr. Thomas Zimmermann
  Topics - Machine Learning, NLP, Information Extraction, Meta-Learning, ML4SE, AIOps

- **Microsoft Research, Bangalore, India** *Jan'20 – June'20*
  Research Intern
  Advisor: Chetan Bansal, Dr. Nachiappan Nagappan, and Dr. Thomas Zimmermann
  Topics - Machine Learning for Software Engineering, Deep Learning, Multi-Task Learning

- **Deloitte Touche Tohmatsu LLC, Bangalore, India** *June'19 – Aug'19*
  ML Research Intern
  Advisor: Dr. Vikram Venkateshwaran
  Topics - Machine Learning, Unsupervised Learning, Security

Academic Service

› **Shadow Program Committee** *Mining Software Repositories (**MSR 2021**)*

› **Reviewer** *Journal of Software Engineering Research and Development (**JSERD**)*

Publications

- **Mining Knowledge Graphs from Incident Reports** *[paper]*
  Manish Shetty, Chetan Bansal
  Under submission (5 pages)

- **Neural Knowledge Extraction from Cloud Service Incidents** *[paper]*
  Manish Shetty, C. Bansal, S. Kumar, N. Rao, N. Nagappan and T. Zimmermann
  43^{rd} *International Conference on Software Engineering **(ICSE)** - SEIP, 2021* (12 pages)
  [Acceptance Rate ≈ **34%**] [**Presenter**]
  In VentureBeat - *"Microsoft's SoftNER AI uses unsupervised learning to help triage service outages"*

- **Exploration and Comparison of Modern AI Algorithms to Predict Drug Efficacy** *[paper]*
  Manish Shetty, A. Kasi, R. Neil, V. Murali, P. Athri, G. Srinivasa
  6^{th} *IEEE **CONECCT**, 2020* (5 pages) [**Presenter**]

- **Denoising and Segmentation of Epigraphical Estampages by Multi Scale Template Matching and Connected Component Analysis** *[paper]*
  P. Preethi*, A. Kasi*, **Manish Shetty***, H. R. Mamatha
  ***Procedia Computer Science**, Volume 171, 2020* (10 pages)

- **Multiscale Template Matching to Denoise Epigraphical Estampages** *[paper]*
  P. Preethi*, A. Kasi*, **Manish Shetty***, H. R. Mamatha
  ***Advances in Intelligent Systems and Computing**, Volume 1034, 2020* (6 pages)

* – equal contributions

Patents

- **Automatic Recognition of Entities Related to Cloud Incidents** filed with the USPTO *June 19, 2020*
  Inventors: **Manish Shetty**, Chetan Bansal, Sumit Kumar, Nikitha Rao, Nachiappan Nagappan and Thomas Zimmermann

Research Experience

- **Meta-Learning for Few-Shot Command Extraction** *Sept'20 – Present*
  Advisors: Chetan Bansal, *Microsoft Research India*
  - Formulated the the command extraction problem as a multi-class sentence classification task.
  - Working on using a meta-learning approach to learn to classify from few weakly labeled examples.

- **Mining Knowledge Graphs from Incident Reports** *Dec'20 – Present*
  Advisors: Chetan Bansal, *Microsoft Research India*
  - Mined **binary entity relations**, scored them using **Normalized PMI**, and constructed a **knowledge-graph**.
  - Mapped entity subsets to clustered incident titles using the knowledge-graph.
  - To be used as an extension to ***Soft*NER**, to recommend relevant entity sub-sets to a new incident.
  - This work has been submitted to ***MSR 2021***.

- **Neural Knowledge Extraction from Cloud Service Incidents** *Jan'20 – Jul'20*
  Advisors: Chetan Bansal, Dr. Nachiappan Nagappan, and Dr. Thomas Zimmermann, *Microsoft Research*
  - Designed & built ***Soft*NER**– a framework for unsupervised knowledge extraction from service incident reports.
  - Framed the problem as a domain agnostic and extensible **Named-Entity Recognition** task.
  - Proposed a **Multi-task**, data-type aware **Bi-LSTM-CRF** model with attention mechanism.
  - ***Soft*NER** is now integrated into Microsoft IcM system and has enriched over 9K+ incidents.
  - This work was accepted at ***ICSE 2021*** (Acceptance Rate $\approx$ 34%) and featured on ***VentureBeat***.

- **Exploration and Comparison of Modern AI Algorithms to Predict Drug Efficacy** *Sept'19 – Feb'20*
  Advisors: Dr. Gowri Srinivasa, *PES University*
  - Worked on improving the critic in **ReLeaSE - Reinforcement learning framework for de-novo drug design**.
  - Improved learning using path-context based encoding and data-augmentation for canonical SMILES.
  - Showed simpler classifiers like random-forest can be better critics than the original LSTM in ReLeaSE.
  - This work was accepted at ***IEEE CONNECT 2020***.

- **Denoising and Segmentation of Epigraphs** *Sept'18 – May'19*
  Advisors: Dr. Mamatha H R, *PES University*
  - Proposed algorithms utilizing noise templates to denoising engraved inscriptions.
  - Work on fixed prior noise template-matching was published in ***Elsevier's PCS 2020***.
  - Work on inferring noise as a factor of character area was published in ***Springer's AISC 2020***.

Relevant Courses

Deep Learning • Machine Learning + Practicum • Natural Language Processing • Linear Algebra • Research Methodology • Introduction to Data Science • Data Analytics • Discrete Mathematics and Logic • Algorithms + Practicum • Advanced Algorithms • Engineering Mathematics I • Engineering Mathematics II