Manish Shetty M

Research Fellow, Microsoft Research India
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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
Manish Shetty, Chetan Bansal
Under submission (5 pages)

Neural Knowledge Extraction from Cloud Service Incidents
Manish Shetty, C. Bansal, S. Kumar, N. Rao, N. Nagappan and T. Zimmermann
43^{rd} *International Conference on Software Engineering - SEIP, 2021* (12 pages) [ICSE'21]
[Acceptance Rate ≈ **34%**]
VentureBeat - *"Microsoft's SoftNER AI uses unsupervised learning to help triage service outages"*

Exploration and Comparison of Modern AI Algorithms to Predict Drug Efficacy
Manish Shetty, A. Kasi, R. Neil, V. Murali, P. Athri, G. Srinivasa
IEEE 6^{th} *International Conference on Electronics, Computing and Communication Technologies* [CONECCT'20]

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

Multiscale Template Matching to Denoise Epigraphical Estampages
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.

- **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 weak-supervised knowledge extraction from service incident reports.
  - Framed the problem as a domain agnostic and extensible **Named-Entity Recognition** task.
  - Proposed a **Multi-task 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 ≈ 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