Shounak Shastri

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Education

- **Vellore Institute of Technology** — Vellore, TN, India
  Doctorate (Ph.D.) in Steganography Algorithms — *Jun.2015 – Dec. 2020*
- **Vellore Institute of Technology** — Vellore, TN, India
  Master of Technology (M.Tech.) in Communication Engineering — *Jun.2013 – May. 2015*
- **K. J. Somaiya College of Engineering** — Mumbai, MH, India
  Bachelor of Engineering (B.E.) in Electronics Engineering — *Aug. 2007 – July. 2012*

Experience

- **VIT–Vellore** — Vellore, TN, IN
  Teaching and Research Assistant (4 years) — *Jan. 2016 – Jan. 2020*
  - **Teaching Assistant**: Taught Digital Communication Systems, Computer Networking and Biomedical Image Processing as on-campus classroom and laboratory courses. Involved in creating and assessing tests and assignments and co-ordinating revision sessions.
  - **Research Assistant**: Research on Steganography algorithms for authentication and secret sharing. Published 5 academic papers in national and international peer-reviewed venues. Delivered talks on Basic Cryptography and Steganography algorithms to an audience of over 60 undergraduate students arranged by the local IEEE Students Chapter. Served as a reviewer for the AIIPCC 2019 and ViTECoN 2019 international conferences.
  - **Mentoring**: Mentored more than 30 students in Image Processing and Computer Vision, Information Security, Machine Learning, Deep Learning and Data Science. Helped students in converting their projects to prototypes and publishable products.

Projects

- **Dual Image RDH with Trinary Encoding (PhD)**: Steganography algorithm using the novel Trinary Encoding technique. Published in international peer-reviewed journal with Impact Factor 2.479.
- **PEE based Dual Image RDH (PhD)**: Modified PEE scheme to fit the Dual Image Steganography scenario. Resulted in an 100% increase in the Embedding Capacity. Presented and published in IEEE International Conference.
- **Word Predictor (NLP)**: Implemented an end-to-end n-gram word predictor in R. Link
- **Browser Based Object Classification (Computer Vision)**: Implemented browser based object classification using Python and Tensorflow with basic HTML. Used Transfer Learning to train a MobileNet Neural Network.
- **Predictive Anaytics (Data Science)**: Explore correlations between customer attributes on synthetic financial data in Python. Build predictive models using Machine Learning techniques like regressions and decision trees.

Skills

- **Programming/Scripting Languages**: Python, R, Matlab
- **Technologies**: OpenCV, TensorFlow, Scipy, Scikit Learn, NLTK, Matplotlib, Trax

Awards and Publications

- **Research Awards:** Awarded for research work carried out on Steganography algorithms at VIT-Vellore.
- **Best Paper Award:** S.Shastri and V.Thanikaiselvan, Dual Image Reversible Data Hiding Using Rhombus Prediction, in 2019 International Conference on Vision Towards Emerging Trends in Communication and Networking (ViTECoN), 2019, pp. 14. Link
- **Peer-reviewed Journal Publications:**
  - S.Shastri and V.Thanikaiselvan, Dual image reversible data hiding using trinar assignment and centre folding strategy with low distortion, J. Vis. Commun. Image Represent., vol. 61, pp. 130140, May 2019. Link
  - V.Thanikaiselvan, S.Shastri, and S.Ahmad, Information hiding: Steganography, Stud. Comput. Intell., vol. 660, pp. 6591, 2017. Link
  - S.Shastri and V.Thanikaiselvan, PVO based Reversible Data Hiding with improved embedding capacity and security, Indian J. Sci. Technol., vol. 9, no. 5, 2016. Link