# Shounak Shastri

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## SUMMARY

Information Security researcher with PhD in Engineering and 4 years of experience as a Teaching and Research Assistant. Currently looking to transition into positions involving Research and Development (R&D) in the fields of Machine Learning (ML), Deep Learning (DL) and Artificial Intelligence (AI). Skilled and experienced in the following areas:

- Image Processing
- Computer Vision
- Problem Solving
- Natural Language Processing (NLP)
- Data Science
- Machine Learning (ML)
- Deep Learning (DL)
- Artificial Intelligence (AI)

## EDUCATION

**Vellore Institute of Technology** Vellore, TN
**PhD**, Steganography Algorithms (Doctorate) *Dec 2020*

**Vellore Institute of Technology** Vellore, TN
**M. Tech** in Communication Engineering (Masters) *May 2015*

**K. J. Somaiya College of Engineering** Mumbai, MH
**B. E.** in Electronics (Bachelors) *May 2012*

## RESEARCH EXPERIENCE

**VIT Vellore, School of Electronics Engineering**
**Ph. D. Research Scholar** *June 2015 – Present*

- Reviewed legacy and state-of-the-art Steganography algorithms in a team and published the analytical findings as 1 review article. (*Link in the Publications section*)
- Developed novel Data Hiding algorithms which resulted in 1 publication in an International conference and 2 publications in top-tier peer-reviewed journals (*Link in the Publications section*).
- 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 (International Conference)

**VIT Vellore, School of Electronics Engineering**
**M. Tech** *July 2013 – May 2015*

- Formulated a Watermarking algorithm which resulted in 1 publication in a peer reviewed journal indexed in the Scopus database.
- Presented work at 3 national level scientific gatherings.

## WORK EXPERIENCE

**VIT Vellore, School of Electronics Engineering**
**Teaching cum Research Assistant** *January 2016 – January 2020* ***(4 yrs)***

- Taught and facilitated classroom and laboratory sessions for undergraduate students in Digital Communication Systems, Networking and Biomedical Image Processing.
- Mentored and coached more than 30 Bachelors and Masters students in Information Security, Machine Learning, Deep Learning and Data Science to design and prototype their projects into presentable and publishable products.
- Used analytical and data science techniques for optimization of student-faculty interaction.

## PROJECTS

**Dual Image Reversible Data Hiding using Rhombus Prediction (Steganography)**

- Developed an innovative Rhombus Prediction scheme to fit in the Dual Image Reversible Data Hiding scenario. This optimization resulted in 100% increase in the embedding capacity.
- Resulted in 1 conference publication. *(Link in the Publications section)*

**Dual Image Reversible Data Hiding using Trinary Assignment (Steganography)**

- Developed a novel Dual Image Data Hiding scheme which encoded the secret data into trinary numbers.
- This resulted in an increase of approx. 8.5% in the average PSNR values when compared with other state-of-the-art algorithms.
- This work was published in a SCI journal with an Impact Factor of 2.479. *(Link in the Publications section)*

***See some of my personal projects at shounakshastri.github.io***

## PROGRAMMING SKILLS

- Well versed with Software Development and Prototyping using Matlab, R and Python.
- Well versed with Machine Learning, Deep Learning, Data Mining and NLP modules in R and Python like Scikit Learn, TensorFlow, NLTK, Matplotlib, Seaborn, Trax, etc.

## PUBLICATIONS


[1] **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. 1–4. DOI: 10.1109/ViTECoN.2019.8899667

[2] **S. Shastri** and V. Thanikaiselvan, "Dual image reversible data hiding using trinary assignment and centre folding strategy with low distortion," *J. Vis. Commun. Image Represent.*, vol. 61, pp. 130–140, May 2019. DOI: https://doi.org/10.1016/j.jvcir.2019.03.022

[3] V. Thanikaiselvan, **S. Shastri**, and S. Ahmad, "Information hiding: Steganography," *Stud. Comput. Intell.*, vol. 660, pp. 65–91, 2017. DOI: https://doi.org/10.1007/978-3-319-44790-2_4

[4] **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.