

SOUNAK DEY

AI Research Engineer at Helsing AI GmbH, Munich

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10 years of experience combined with industry, individual and collaborative research in Machine Learning and most importantly as a researcher including problem handling and solving, software implementation and project management. Able to work under pressure, able to accomplish overall organization objectives and specially able to converge a system towards a direction.

EXPERIENCE

AI Research Engineer

Helsing AI GmbH

📅 August 2021 – Present

📍 Munich

Zero shot and few shot learning.

Post doctoral Research Fellow

Centre de Visió per Computador

📅 December 2020 – Present

📍 Barcelona

Collaborate at different research projects with OMNI:US (a german company) on table detection and recognition.

Research Associate

CVPR unit - Indian Statistical Institute

📅 October 2013 – November 2014

📍 Kolkata

Collaborate at different research projects on the topics of computer vision and image processing. Heat Kernel Signature, fractals, multi oriented scene text spotting in multi lingual documents.

Research Associate

ECS unit - Indian Statistical Institute

📅 October 2011 – September 2013

📍 Kolkata

Collaborate at different research projects on the topics of real time digital signal processing and structural pattern recognition. Development of real-time atmospheric data logger. Study, Design and Guiding Bachelor's Intern Student.

SELECTED PROJECTS

CONtextualising the CONtents in the Recognition of Document Images from Archives (CONCORDIA)

MINECO

📅 2015 – 2016

📍 Barcelona

Python, Computer Vision

Incorporating context to human interface for historical documents. Contextual Recognition of Ancient Documents (Co-Read) - MINECO funded project Contextual Recognition of Ancient Documents (Co-READ) studies information spotting techniques to search words and shapes in ancient document images. In addition, contextual search in documents will be investigated. Context means the structural and syntactic relations between basic components (words and symbols)

Consolidated Research Group DAG-CVC (SGR)

AGAUR funded project for Image Processing, Pattern Reconition and Computer Vision related problems

📅 2017

📍 Barcelona

Python, Computer Vision

Contextual Recognition of Ancient Documents (Co-Read)

MINECO

📅 2017 – 2019

📍 Barcelona

EDUCATION

Ph.D. in Computer Science

Computer Vision Center, Universitat Autònoma de Barcelona

📅 October 2016 – November 2020

📍 Barcelona

- Topics: Structural representations, Deep Learning.
 - Visiting: *Queen Mary University of London* – Dr. Yi-Zhe Song
 - Supervisors: Josep Lladós and Umapada Pal
- Graduated with Cum Laude

M.Sc. in Computer Vision

Universitat Autònoma de Barcelona

📅 September 2014 – September 2015

📍 Barcelona

Graduated with Honours

M.Tech. in Instrumentation and Control Engineering

Calcutta University

📅 August 2009 – July 2011

📍 Kolkata

Graduated with Honours

SELECTED PUBLICATIONS

📄 Journal Articles

- Dey, Sounak, Anguelos Nicolauo, et al. (2019). "Evaluation of word spotting under improper segmentation scenario". In: *IJDAR*.
- Dey, Sounak, Anjan Dutta, et al. (2017). "Signet: Convolutional siamese network for writer independent offline signature verification". In: *arXiv preprint arXiv:1707.02131*.
- Dey, Sounak, Palaiahnakote Shivakumara, et al. (2017). "Script independent approach for multi-oriented text detection in scene image". In: *Neurocomputing*.

👥 Conference Proceedings

- Dey, Sounak et. al. (June 2019). "Doodle to Search: Practical Zero-Shot Sketch-Based Image Retrieval". In: *CVPR. (Oral)*.
- Dey, Sounaka et. al. (2018). "Aligning Salient Objects to Queries: A Multi-modal and Multi-object Image Retrieval Framework". In: *ACCV*.

(Google Scholar h-index=7, full list in my personal webpage)

Python, Matlab, Machine Learning, Computer Vision

MINECO funded project Contextual Recognition of Ancient Documents (Co-READ) studies information spotting techniques to search words and shapes in ancient document images. In addition, contextual search in documents will be investigated. Context means the structural and syntactic relations between basic components (words and symbols)

ACTIVITIES

Program Committee Member in ICDAR 2021

Reviewer in IJDAR

Program Committee Member in GREC 2021

STRENGTHS

Computer Vision

Machine Learning

Deep Learning

Pattern Recognition

Programming logic

Vision based Industrial Automation

Python(+PyTorch)

MATLAB

L^AT_EX

RECENT PROJECTS

Sketch Guided Object Detection and Segmentation

SGOL

📅 2021

📍 Barcelona

Python, Computer Vision

Sketch-guided object localization, where human sketches are used as queries to conduct the object localization in natural images. In this cross-modal setting, a sketch-conditioned DETR (DEtection TRansformer) architecture which enables its usage in unconstrained cases and alleviates the domain gap between sketches and images to localize object instances. Its natural extension to sketch-guided instance segmentation is also done.

Unpaired Sketch to Image Retrieval using semi-supervision or in unsupervised manner

USBIR

📅 2021

📍 Barcelona

Python, Computer Vision

Unique cross-domain (sketch and photo) nature of the problem poses a lot of problem for unsupervised representation learning method. Investigate on a novel framework that simultaneously performs unsupervised representation learning and sketch-photo domain alignment.

LANGUAGES

English

● ● ● ● ●

Bengali

● ● ● ● ●

Hindi

● ● ● ● ●

Spanish

● ● ● ● ●

OTHER PROFICIENCY

C++

JAVA

Emebdedd C

VHDL

● ● ● ● ●
● ● ● ● ●
● ● ● ● ●
● ● ● ● ●

APPRECIATION AND AWARDS



Awarded Grant for Best Paper (2019)
Dept. of Computer Science, Universitat
Autónoma de Barcelona



Bhavishojoyti Scholarship
NIIT India (2008)



2nd
Dept. of Electronics and Instrumentation
during B.Tech

TEACHING

Software Engineering in Computer Science

Universitat Autónoma de Barcelona

📅 2017 – 2019

📍 Barcelona

Physical Optics and Light

George Group of Colleges

📅 August 2009 – July 2011

📍 Kolkata