

THOMAS DAGÈS

Haifa, Israel

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EDUCATION

Technion, Faculty of Computer Science

PhD candidate - Towards Neural Network Interpretability

Advisors: Alfred Bruckstein and Michael Lindenbaum

2020 – Today

Haifa, Israel

Technion, Faculty of Computer Science

MSc - Spatio-Temporal Salient Detection of Moving Objects in Highly Degraded Video Data

Advisors: Alfred Bruckstein and Michael Lindenbaum

2017 – 2019

Haifa, Israel

École Polytechnique

Engineering degree (MSc equivalent) specialised in Mathematics and Computer Science

2014 – 2017

Palaiseau, France

Lycée Louis-Le-Grand

Intensive preparatory classes for competitive entrance examinations to the French Grandes Écoles

2012 – 2014

Paris, France

PUBLICATIONS

- Amit Bracha, **Thomas Dagès**, and Ron Kimmel. “On Partial Shape Correspondence and Functional Maps”, arXiv preprint arxiv:2310.14692 (2023).
- **Thomas Dagès**, Michael Lindenbaum, and Alfred M. Bruckstein. “From Compass and Ruler to Convolution and Nonlinearity: On the Surprising Difficulty of Understanding a Simple CNN Solving a Simple Geometric Estimation Task”, arXiv preprint arXiv:2303.06638 (2023).
- **Thomas Dagès**, Laurent D. Cohen, and Alfred M. Bruckstein. “A Model is Worth Tens of Thousands of Examples.” Scale Space and Variational Methods in Computer Vision (SSVM) conference (2023).
- **Thomas Dagès** and Alfred M. Bruckstein. “Doubly Stochastic Pairwise Interactions for Agreement and Alignment.” SIAM Journal on Applied Mathematics 82.4 (2022): 1246-1266.
- Ariel Barel, **Thomas Dagès**, Rotem Manor, and Alfred M. Bruckstein. “Probabilistic gathering of agents with simple sensors.” SIAM Journal on Applied Mathematics 81.2 (2021): 620-640.
- **Thomas Dagès** and Alfred M. Bruckstein. “A Bound on the Edge-Flipping Distance between Triangulations (Revisiting the Proof).” arXiv preprint arXiv:2106.14408 (2021).
- **Thomas Dagès**, Michael Lindenbaum, and Alfred M. Bruckstein. “Seeing Things in Random-Dot Videos.” MSc Thesis. Computer Science Department, Technion, 2020.
- **Thomas Dagès**, Michael Lindenbaum, and Alfred M. Bruckstein. “Seeing Things in Random-Dot Videos.” Asian Conference on Pattern Recognition. Springer, Cham, 2019.

SUPERVISION EXPERIENCE

Automated Saffron Detection and Extraction for a Factory Line

2021 - Today

- Undergraduate project.

TEACHING EXPERIENCE

236201 - Introduction to Data Processing and Representation

2021 - Today

- Head Teaching Assistant.
- Creating and teaching entirely new material, homeworks, and exams and correcting the latter.

236200 - Signal, Image, and Data Processing

2019 - 2021

- Cohead Teaching Assistant.
- Teaching with mostly existing material, creating and correcting new homeworks and exams.

236861 - Geometric Computer Vision

2019

- Homework Checker.

RESEARCH PROJECTS

Technion

2018

Student Research Project

Haifa, Israel

- Created a state-of-the-art astronomical image deblurring algorithm by applying an approach using sparse representations.

École Polytechnique – Université Paris Descartes

2016 – 2017

Student Research Project

Palaiseau, France

- Created and implemented an emotion detector on human faces with a webcam by using the active shape model and fuzzy logic.

Dassault systèmes

2017

Research Intern

Vélizy, France

- In the context of 3D city modelling based on ground photographs, created and implemented an occlusion and reflection remover on the reconstructed texture with automatic detection and inpainting.

Renault Technologies Romania

2016

Computer-Aided Engineering Intern

Bucharest, Romania

- Numerically modelled and simulated the problems of exaggerated opening and closing of a car bonnet maintained by a prop rod, for replacing the costly hydraulic cylinders on the Renault Kaptur.

RESEARCH INTERESTS

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| • Computer Vision | • Modelling Human Vision | • Interpretable Artificial Intelligence | • Statistics |
| • Signal and Image Processing | • Classical Machine Learning | • Abstract and Applied Mathematics | • Geometry |
| • Image Analysis | | | • Computer Science |

LANGUAGES

Computers: Python, Matlab, C++, Java, OCaml

Humans: English (fluent), French (fluent), German (intermediate), Russian (beginner), Hebrew (beginner)

EXTRACURRICULAR

- | | |
|---|---|
| • Individual sports in a group atmosphere: horse riding, bouldering, surfing. | • Discovering baking and the plastic arts. |
| • Thought provoking scifi reading/viewing and discussions. | • Unplugging through gaming and outings with friends. |