Nicolas **Cherel**

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Education

Télécom Paris — *Paris, France*

PH.D. 'INTERNAL METHODS FOR THE GENERATION AND INPAINTING OF IMAGES AND VIDEOS' — *2020 - 2024*

Under the supervision of Alasdair Newson, Yann Gousseau, and Andrés Almansa

ENS Paris-Saclay — *Paris, France*

MSC IN MATHEMATICS, COMPUTER VISION AND MACHINE LEARNING (MVA) - *Graduated with high honors* — *2017 - 2018*

Courses: Object Recognition and Computer Vision, Probabilistic Graphical Models, Graphs, Kernel Methods

Télécom Paris — *Paris, France*

MSC IN COMPUTER SCIENCE AND APPLIED MATHEMATICS - *GPA: 3.99/4.0* — *2014 - 2018*

Courses: Statistics, Optimization, Machine Learning Algorithms, Distributed Systems, Databases

Experience

Disney Research — *Zürich, Switzerland*

RESEARCH SCIENTIST — *Oct. 2024 - Jan. 2025*

Video inpainting

Adobe — *Paris, France*

RESEARCH SCIENTIST INTERN — *Jun. 2022 - Aug. 2022*

Patch-based methods on surfaces

Télécom Paris — *Paris, France*

RESEARCH ENGINEER — *Mar. 2020 - Oct. 2020*

- Implemented state-of-the-art video inpainting algorithm
- Wrote a literature review on video inpainting

Smiths Detection — *Paris, France*

RESEARCH ENGINEER — *Nov. 2019 - Feb. 2020*

- Worked on object detection in X-ray cargo imaging
- Successfully implemented and applied state-of-the-art domain adaptation methods

Gleamer — *Paris, France*

MACHINE LEARNING ENGINEER — *Apr. 2018 - Sep. 2019*

- Developed deep learning models to detect fractures in X-ray images
- Took many architectural and algorithmic decisions as the main machine learning engineer
- Reached significative improvement in helping radiologists for the task (clinically tested)

Cornell Tech — *New York, United States*

RESEARCH ENGINEER INTERN — *Apr. 2017 - Sep. 2017*

- Improved the data pipeline for predicting bird migrations using Spark, R, and Amazon Web Services
- Reduced cloud computing costs by 80% accounting for $200k saved annually

Microsoft — *Paris, France*

SOFTWARE ENGINEER INTERN — *Jul. 2016 - Feb. 2017*

- Investigated the cold start problem for music recommendation in *Groove Music*
- Wrote production code in C++ for a software with millions of users

Skills

Programming Languages Python, C++, Shell, Matlab, Java

Libraries PyTorch, CUDA, Numpy, TensorFlow, scikit-learn, Pandas

Misc. Git, GNU/Linux, Spark, Hadoop, SQL, LaTeX

Languages French (native), English (fluent)

Publications

Infusion: Internal Diffusion for Video Inpainting
Nicolas Cherel, Andrés Almansa, Yann Gousseau, Alasdair Newson
In preparation, 2023. URL: https://arxiv.org/abs/2311.01090

Diffusion-based image inpainting with internal learning
Nicolas Cherel, Andrés Almansa, Yann Gousseau, Alasdair Newson
(EUSIPCO 2024) 32nd European Signal Processing Conference, 2024, Lyon. URL: https://arxiv.org/abs/2406.04206

Patch-Based Stochastic Attention for Image Editing
Nicolas Cherel, Andrés Almansa, Yann Gousseau, Alasdair Newson
Computer Vision and Image Understanding 238 (Jan. 2024) p. 103866. 2024. URL: https://www.sciencedirect.com/science/article/abs/pii/S1077314223002461

A Patch-Based Algorithm for Diverse and High Fidelity Single Image Generation
Nicolas Cherel, Andrés Almansa, Yann Gousseau, Alasdair Newson
2022 IEEE International Conference on Image Processing (ICIP), 2022. URL: https://hal.science/hal-03822204/

Assessment of an AI Aid in Detection of Adult Appendicular Skeletal Fractures by Emergency Physicians and Radiologists: A Multicenter Cross-sectional Diagnostic Study
Loïc Duron, Alexis Ducarouge, André Gillibert, Julia Lainé, Christian Allouche, Nicolas Cherel, Zekun Zhang, Nicolas Nitche, Elise Lacave, Aloïs Pourchot, Adrien Felter, Louis Lassalle, Nor-Eddine Regnard, Antoine Feydy
Radiology 300.1 (July 2021) pp. 120–129. 2021

Teaching & reviewing

Teaching assistant

Labs and projects supervision in machine learning, deep learning, computer vision, and image processing for courses at Télécom Paris, MVA, M2 Data Science

- 2022-2023: 64h
- 2021-2022: 64h
- 2020-2021: 32h

Reviewer

IEEE Transactions on Computational Imaging, IEEE Transactions on Multimedia