Étienne Corman

Researcher

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Education

09/13 – 12/16   **Ph.D. in Applied Mathematics**, *École Polytechnique*, Paris Saclay.
Advisors: *Maks Ovsjanikov* and *Antonin Chambolle*
Laboratoire d'informatique de l'École polytechnique (LIX)
Title: Functional representation of deformable surfaces for geometry processing

2012 – 2013   **Master in Mathematics**, *Université Paul-Sabatier*, Toulouse.
Fundamental and Applied Mathematics
Topics: Functional Analysis (Hilbert and Sobolev Spaces, Spectral Theory), Partial Derivative Equations for Fluid Mechanics

2008 – 2013   **Engineering Degree**, *Institut National des Sciences Appliquées*, Toulouse.
Applied Mathematics and Modelization
Topics: Optimization, Numerical analysis for Partial Derivative Equations, Signal Processing, C++ Programming

Research Experience

12/19 – Present   **CNRS Researcher**, *LORIA*, PIXEL Team.

06/19 – 09/19   **Postdoctoral Researcher**, *École Polytechnique*, LIX.
Advisors: *Maks Ovsjanikov*:
Interpolation and extrapolation of 3D surfaces.

01/18 – 02/19   **Postdoctoral Researcher**, *University of Toronto*, Toronto.
Advisors: *Alec Jacobson*:
Nearest neighborhood search in geometric data.

01/17 – 12/17   **Postdoctoral Researcher**, *Carnegie Mellon University*, Pittsburgh.
Advisors: *Keenan Crane*:
Discrete differential geometry for mesh processing.

09/13 – 12/16   **Graduate Research Assistant**, *École Polytechnique*, LIX.
Geometry Processing: Developed algorithms for geometry processing and graphics using techniques from continuous differential geometry and optimization.

02/13 – 06/13   **Research Assistant**, *École Polytechnique*, CMAP.
Advisor: *Antonin Chambolle*
Convex Optimization: Study of convergence rates and acceleration methods for first order primal-dual algorithms

07/12 – 09/12   **Research Assistant**, *Hong Kong Baptist University*, Hong Kong.
Advisor: *Xiaoming Yuan*
- **Image Processing**: Color image denoising using correlation between channels
- **Convex Optimization**: Study of convergence rates of proximal point type algorithms

Teaching and Supervision

Lecture

Analysis and Deep Learning on Geometric Data, Master Artificial Master Artificial Intelligence and advanced Visual Computing, École Polytechnique, Fall 2022 with Maks Ovsjanikov

Teaching Assistant

General mathematics course, Polytech Paris-Sud, 2013, 2014, 2015

2020 – 2023 **Guillaume Coiffier**, *co-supervised with Dmitry Sokolov.*

2019 – 2022 **Nicolas Donati**, *co-supervised with Maks Ovsjanikov.*

Scientific Publications

2023 **The Method of Moving Frames for Surface Global Parametrization**.
G. Coiffier and E. C. ACM Transactions on Graphics

2022 **Deep Orientation-Aware Functional Maps: Tackling Symmetry Issues in Shape Matching**.
N. Donati, E. C. and M. Ovsjanikov. IEEE Conference on Computer Vision and Pattern Recognition (Proc. CVPR)

Complex Functional Maps: a Conformal Link Between Tangent Bundles.
N. Donati, E. C., S. Melzi and M. Ovsjanikov. Computer Graphics Forum

Robust Quantization for Polycube Maps.
F. Protais, M. Reberol, N. Ray, E. C., F. Ledoux and D. Sokolov. Computer-Aided Design

2021 **Designing 2D and 3D Non-Orthogonal Frame Fields**.
D. Desobry, Y. Coudert-Osmont, E. C., N. Ray and D. Sokolov. Computer-Aided Design (Proc. SPM)

2020 **Global parametrization based on Ginzburg-Landau functional**.
V. Blanchi, E. C., N. Ray and D. Sokolov. NUMGRID 2020

2019 **Symmetric Moving Frames**.
E. Corman and K. Crane, ACM Transactions on Graphics (Proc. SIGGRAPH)

Functional Characterization of Deformation Fields.
E. C. and M. Ovsjanikov. ACM Transactions on Graphics

2017 **Consistent Functional Cross Field Design for Mesh Quadrangulation**.
O. Azencot, E. C., M. Ben-Chen and M. Ovsjanikov. ACM Transactions on Graphics (Proc. SIGGRAPH)

2016 **Functional Characterization of Intrinsic and Extrinsic Geometry**.
E. C., S. Solomon, M. Ben-Chen, L. Guibas and M. Ovsjanikov. ACM Transaction On Graphics.

2015 **Continuous Matching via Vector Field Flow**.
E. C., M. Ovsjanikov and A. Chambolle. Proceedings of the Eurographics Symposium on Geometry Processing, 2015.

2014 **Supervised Descriptor Learning for Non-Rigid Shape Matching**.
E. C., M. Ovsjanikov and A. Chambolle. ECCV Workshops

A Generalized Proximal Point Algorithm and its Convergence Rate.
E. C., X. Yuan. SIAM Journal on Optimization

Service Activities

Program Committee Member

Eurographics Short Papers, 2022
Computer Graphics International, 2022, 2023

Reviewer

SIGGRAPH, SIGGRAPH Asia, ACM Transactions and Graphics, Pacific Graphics, Solid and Physical Modeling, Computer Graphics International, Computer-Aided Design