

# Alexandre Binninger



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**Motivation** Passionate about Computer Science, Mathematics and Computer Graphics.

## 📖 Education

- **ETH Zürich** Zürich  
*PhD in Computer Science* 2021 – Now
  - ▶ Research interest: Representation of shapes based on the curvature descriptors.
  - ▶ Advised by Prof. Dr. Olga Sorkine-Hornung at IGL (*Interactive Geometry Lab*).
- **ETH Zürich** Zürich  
*M.Sc. in Computer Science* 2019 – 2021
  - ▶ Focused on Visual Computing-related courses including *Shape Modeling and Geometry Processing*, *Computer Graphics* and *Physically-Based Simulation*.
  - ▶ Master Thesis: *Approximation of 3D Shapes by Developable Surfaces via Tangent Space Thinning*.
- **École Polytechnique** Palaiseau  
*Master of Engineering, Science and Technology* 2016 – 2019
  - ▶ Algorithms and foundations of programming languages track.
  - ▶ Computer Science courses include: *Algorithm Design and Analysis*, *Randomization*, *Cryptography*, *Information Theory*.
  - ▶ Mathematics courses include: *Randomness*, *Numerical Approximation and Optimization*, *Functional Analysis*.
- **Université Paris-Nanterre** Paris  
*Bachelor of Philosophy* 2017 – 2018
  - ▶ Distance learning alongside scientific studies. Awarded with honors.
  - ▶ Courses include: *Logic*, *Philosophy of Science*, *Metaphysics: Experience by Kant and Hegel*.
- **Lycée Louis-Le-Grand** Paris  
*Preparatory program* 2014 - 2016
  - ▶ A two-year post secondary intensive coursework leading to competitive entrance examinations to the *Grandes Écoles*. Main courses: Mathematics and Physics.

## 📄 List of publications

- **Smooth Interpolating Curves with Local Control and Monotone Alternating Curvature** July 2022  
*In Computer Graphics Forum (proceedings of SGP) 2022*  
Alexandre Binninger, Olga Sorkine-Hornung
- **Developable Approximation via Gauss Image Thinning** July 2021  
*In Computer Graphics Forum (proceedings of SGP) 2021*  
Alexandre Binninger, Floor Verhoeven, Philipp Herholz, Olga Sorkine-Hornung

## Research Work

- **Master Thesis – Shape Modeling** Zürich  
*Interactive Geometry Lab - ETH Zürich* Sept. 2020 - April 2021
  - ▶ Subject: *Approximation of 3D Shapes by Developable Surfaces via Tangent Space Thinning*
  - ▶ Devising a method based on differential geometry properties.
  - ▶ Implementation in C++ with libigl.
  - ▶ Supervised by Prof. Dr. Olga Sorkine-Hornung.
- **Research Internship – Program Verification** Zürich  
*Programming Methodology Group - ETH Zürich* April 2019 - August 2019
  - ▶ Subject: *Completeness, Termination and Efficiency for e-matching-based Axiomatisations.*
  - ▶ Deep study of the Completeness and Termination of the sequence theory by varying the triggers.
  - ▶ Implementation and axiom profiling using Viper.
  - ▶ Supervised by Dr. Alexander J. Summers.
- **Team Research Project** Palaiseau  
*Live theater subtitling Project* Jun. 2017 - Jul.2018
  - ▶ Displayed subtitles in real time on smart glasses or a smartphone with a web interface.
  - ▶ Designed the algorithm matching the actors' spoken text with their written text.
  - ▶ Winners of the Vivatech Competition. Project presented at the international Microsoft Imagine Cup.

## Work Experience

- **Muvee Technologies** Singapore  
*Software engineering internship* Jun. 2018 - Aug. 2018
  - ▶ Integrated a development team working on an automatic photobook-maker application.
  - ▶ Implemented an Auto-Titler based on date, time and AI Scene Classification.
  - ▶ Created an algorithm to sketch a social network from people appearing in a set of pictures.
- **Gendarmerie Nationale** Colmar  
*Leadership training as Cadet Officer* Sept. 2016 - Mar. 2017
  - ▶ Part of École Polytechnique's first year program as a military service.
  - ▶ Optimised the service distribution among several police squads.
  - ▶ In charge of designing user-friendly interface based on Excel.

## Skills

- **IT-related skills**
  - ▶ **Programming languages:** C++ (★★★★), Python (★★★), Java (★★★), Matlab (★★), Javascript (★★), OCaml (★), SQL (★), Lua (★).
  - ▶ **Others:** L<sup>A</sup>T<sub>E</sub>X(★★★★), Git(★★★), Unix(★★★), HTML/CSS (★), Blender (★), Inkscape (★).
- **Languages:** French (native), English (proficient), German (intermediate), Chinese (Beginner).

## Outside Activities

- **Discord community - Developer and Leader** Zürich  
*E-sport Community* *Sept. 2019 - February 2021*
  - ▶ Created, developed and managed a Discord server reaching 1'000 members. Tournament Organizer.
  - ▶ Designed and implemented a Discord bot hosted on a remote VPS featuring a ranking system, a match wizard, an automated competitive event manager and a profile card generator with gamified features.
  - ▶ Implementation with discord.py, Python Imaging Library (PIL) and MySQL.
- **Computer service system student association** Palaiseau  
*Computer Technology association at École polytechnique* *Nov. 2017 - Oct. 2018*
  - ▶ Deployed a web service for equipment pool among students on the campus.
  - ▶ Provided support for students' computer-related problems.
  - ▶ Integrated the Sysadmin team.