Dr. Marcel Padilla | Curriculum Vitae

Technical University of Berlin, Institute for Mathematics, Str. des 17. Juni 136
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Academic Positions

Research assistant — **TU Berlin**
Discretization in Geometry and Dynamics & SFB Transregio 109 — *2023 – Current*

Doctoral researcher — **TU Berlin & Caltech**
Supervisors: Ulrich Pinkall & Peter Schröder — *2018 – 2023*

Student Assistant — **TU Berlin**
Code development and making Tutorials for the academic usage of the software Houdini. — *2014 – 2017*

Education

PhD in Mathematics — **TU Berlin & Caltech**
Doktor der Naturwissenschaften — *2018 – 2023*

B.Sc & M.Sc. — **TU Berlin**
Studiengang Mathematik — *2012 – 2018*

Association Memberships and Awards

Employee at TU Berlin
Discretization in Geometry and Dynamics & SFB Transregio 109 — *2021 - Current*

Berlin Mathematical School and Math+
PhD Phase II student membership — *2018 - 2023*

PhD scholarship
funded through a Einstein foundation visiting fellowship — *2018 - 2021*

German Academic Scholarship Foundation
Student scholarship, Studienstiftung des Deutschen Volkes, now alumni — *2016 - 2018*

German Mathematician Union (DMV)
Abitur Award, for excellent performances in mathematics — *2012*

Hans Riegel Foundation alumni
Award, for a mathematical submission as an Abitur exam — *2012*

Jugend Forscht
Young researchers competition award in Berlin — *2011*

Publications

- **NEW: Motion From Shape Change**. Oliver Gross, Yousuf Soliman, Marcel Padilla, Felix Knöppel, Ulrich Pinkall, Peter Schröder (2023). ACM Transactions on Graphics, Vol. 42, No. 4
- **Filament Based Plasma**. Marcel Padilla, Oliver Gross, Felix Knöppel, Albert Chern, Ulrich Pinkall, Peter Schröder (2022). ACM Transactions on Graphics, Vol. 41, No. 4, Art. 153
- **4D Atlas: Statistical Analysis of the Spatiotemporal Variability in Longitudinal 3D Shape Data.** Hamid Laga, Marcel Padilla, Ian H. Jermyn, Sebastian Kurtek, Mohammed Bennamoun, Anuj Srivastava

(2022). IEEE Transactions on Pattern Analysis and Machine Intelligence.

- o **On Bubble Rings and Ink Chandeliers**. Marcel Padilla, Albert Chern, Felix Knöppel, Ulrich Pinkall, Peter Schröder (2019). ACM Transactions on Graphics, Vol. 38, No. 4, Art. 129
- o **The Nearest Hermitian Inverse Eigenvalue Problem Solution with Respect to the 2-Norm**. Marcel Padilla, Benedikt Kolbe, Aniruddha Chakraborty (2017). arXiv:1703.00829
- o **A.C.T.I.V.E.: A Scalable Superellipsoid-based CFD Visualization for Virtual and Desktop Environments**. Heiko Herrmann, Marcel Padilla, and Emiliano Pastorelli (2014). EuroVR 2014, The Eurographics Association. 10.2312/eurovr.20141344
- o **Eine Neue Visualisierung komplexer Funktionen**. Marcel Padilla. Junge Wissenschaft issue Nr. 94, 2012

Conference Presentations & Talks

- o IGL Seminar at ETH Zürich 2023. *Filament Based Plasma*.
- o SFB Transregio 109 DGD days 2022 in Magdeburg. *Filament Based Plasma*.
- o ACM SIGGRAPH 2022. *Filament Based Plasma*. View on Youtube
- o SFB Transregio 109 DGD days 2021 in Landshut. *Filament Based Plasma: Discrete Magnetohydrodynamics*.
- o 8th BMS student conference 2020. *On Bubble Rings and Ink Chandeliers*.
- o ACM SIGGRAPH 2019. *On Bubble Rings and Ink Chandeliers*. View on Youtube.
- o 7th BMS student conference 2019. *Simulating Hurricanes on Bunnies, Point Vortex Dynamics on Closed Surfaces*.
- o EuroVR 2014, The Eurographics Association. *A.C.T.I.V.E. A Scalable Superellipsoid-based CFD Visualization for Virtual and Desktop Environments*.

Experiences

Visiting Research

California Institute of Technology	**Pasadena, United States**
Department of Mathematics	*Jul-Sep 2019*
Research visit. Supervisor: Peter Schröder	
Leicester University	**Leicester, United Kingdom**
Department of Mathematics	*Jan 2019*
Implementing minimal and cmc surfaces. Supervisor: Katrin Leschke	
King Abdullah University of Science and Technology	**Thuwal, Saudi Arabia**
KAUST internship program	*Feb 2018 – Apr 2018*
Wood fracture dynamics. Supervisor: Dominik L. Michels	
Murdoch University	**Perth, Australia**
DAAD rise worldwide scholarship	*Aug 2016 – Oct 2016*
Machine learning on 4D shape analysis. Supervisor: Hamid Laga	
Indian Institute of Technology Mandi	**Mandi, India**
DAAD rise worldwide scholarship	*Aug 2015 – Oct 2015*
Numerical methods for inverse eigenvalue problems. Supervisor: Aniruddha Chakraborty	
Institute of Cybernetics	**Tallinn, Estonia**
DAAD rise worldwide scholarship	*Jul 2014 – Sep 2014*
Tensor field visualization in VR. Supervisor: Heiko Herrmann	

Research

TU Berlin	**Berlin, Germany**
Student assistant	*Dec 2014 - Sep 2017*
Discretization in Geometry and Dynamics SFB Transregio 109	

Teaching

The Art of Presenting   **Berlin, Germany**
Workshop on presentations in academia at BMS/Math+, TU Berlin   *Winter 2019 & 2020*

Geometry Processing and Applications   **Berlin, Germany**
Tutorials and several lectures, TU Berlin   *Winter 2019/2020*

Houdini Tutorials Tailored for Mathematicians   **Berlin, Germany**
Online tutorials and course guide, TU Berlin   *2016 - Current*

Mahtematik für Physiker I   **Berlin, Germany**
Tutor classes, TU Berlin   *Winter 2015/2016*

Teaching Assistant   **Berlin, Germany**
Volunteer, Multicultural Youth and Integration Center mji e.V.   *2012 – 2015*

Study Exchange

Sophia Univeristy   **Tokyo, Japan**
Oversees exchange scholarship from the TU Berlin   *Sep 2017 – Feb 2018*

Durham Univeristy   **Durham, United Kingdom**
Erasmus exchange scholarship from the EU   *Sep 2013 – Jul 2014*

Technical and Personal Skills

Languages

English: *excellent command*
German: *native, German nationality*
Spanish: *native, Mexican nationality*
French: *Intermediate*
Japanese: *beginner*
Arabic: *beginner*

Programming Languages and Software

Main computation tools: *Python, Houdini VEX, MATLAB*
Experienced: *C++, java, javascript, html, css*

Volunteering

Foodsharing e.V.   **Berlin, Germany**
Saving and distributing surplus food   *2019 – current*

Arbeiter-Samariter-Bund   **Berlin, Germany**
Kitchen staff, refugee emergency housing (Rathaus Wilmersdorf)   *2015 – 2017*

St. John Ambulance Society   **Durham, UK**
First aid response team   *2013 – 2014*

Multicultural Youth and Integration Center mji e.V.   **Berlin, Germany**
Volunteer, Homework helper   *2012 – 2015*