

Dr. Marcel Padilla | Curriculum Vitae

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Academic Positions

Research assistant <i>Discretization in Geometry and Dynamics & SFB Transregio 109</i>	TU Berlin 2023 – Current
Doctoral researcher <i>Supervisors: Ulrich Pinkall & Peter Schröder</i>	TU Berlin & Caltech 2018 – 2023
Student Assistant <i>Code development and making Tutorials for the academic usage of the software Houdini.</i>	TU Berlin 2014 – 2017

Education

PhD in Mathematics <i>Doktor der Naturwissenschaften</i>	TU Berlin & Caltech 2018 – 2023
B.Sc & M.Sc. <i>Studiengang Mathematik</i>	TU Berlin 2012 – 2018

Association Memberships and Awards

Employee at TU Berlin <i>Discretization in Geometry and Dynamics & SFB Transregio 109</i>	2021 - Current
Berlin Mathematical School and Math+ <i>PhD Phase II student membership</i>	2018 - 2023
PhD scholarship <i>funded through a Einstein foundation visiting fellowship</i>	2018 - 2021
German Academic Scholarship Foundation <i>Student scholarship, Studienstiftung des Deutschen Volkes, now alumni</i>	2016 - 2018
German Mathematician Union (DMV) <i>Abitur Award, for excellent performances in mathematics</i>	2012
Hans Riegel Foundation alumni <i>Award, for a mathematical submission as an Abitur exam</i>	2012
Jugend Forscht <i>Young researchers competition award in Berlin</i>	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

Experiences

Visiting Research.....

California Institute of Technology <i>Department of Mathematics</i> Research visit. Supervisor: Peter Schröder	Pasadena, United States <i>Jul-Sep 2019</i>
Leicester University <i>Department of Mathematics</i> Implementing minimal and cmc surfaces. Supervisor: Katrin Leschke	Leicester, United Kingdom <i>Jan 2019</i>
King Abdullah University of Science and Technology <i>KAUST internship program</i> Wood fracture dynamics. Supervisor: Dominik L. Michels	Thuwal, Saudi Arabia <i>Feb 2018 – Apr 2018</i>
Murdoch University <i>DAAD rise worldwide scholarship</i> Machine learning on 4D shape analysis. Supervisor: Hamid Laga	Perth, Australia <i>Aug 2016 – Oct 2016</i>
Indian Institute of Technology Mandi <i>DAAD rise worldwide scholarship</i> Numerical methods for inverse eigenvalue problems. Supervisor: Aniruddha Chakraborty	Mandi, India <i>Aug 2015 – Oct 2015</i>
Institute of Cybernetics <i>DAAD rise worldwide scholarship</i> Tensor field visualization in VR. Supervisor: Heiko Herrmann	Tallinn, Estonia <i>Jul 2014 – Sep 2014</i>
TU Berlin <i>Student assistant</i> Discretization in Geometry and Dynamics SFB Transregio 109	Berlin, Germany <i>Dec 2014 - Sep 2017</i>

Teaching.....

The Art of Presenting <i>Workshop on presentations in academia at BMS/Math+, TU Berlin</i>	Berlin, Germany <i>Winter 2019 & 2020</i>
Geometry Processing and Applications <i>Tutorials and several lectures, TU Berlin</i>	Berlin, Germany <i>Winter 2019/2020</i>
Houdini Tutorials Tailored for Mathematicians <i>Online tutorials and course guide, TU Berlin</i>	Berlin, Germany <i>2016 - Current</i>
Mahtematik für Physiker I <i>Tutor classes, TU Berlin</i>	Berlin, Germany <i>Winter 2015/2016</i>
Teaching Assistant <i>Volunteer, Multicultural Youth and Integration Center mji e.V.</i>	Berlin, Germany <i>2012 – 2015</i>

Conference Presentations & Talks

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

Study Exchange.....

Sophia Univeristy

Oversees exchange scholarship from the TU Berlin

Tokyo, Japan

Sep 2017 – Feb 2018

Durham Univeristy

Erasmus exchange scholarship from the EU

Durham, United Kingdom

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*

Experienced: *C++, java, javascript, html, css, MATLAB*

Volunteering.....

Foodsharing e.V.

Saving and distributing surplus food

Berlin, Germany

2019 – current

Arbeiter-Samariter-Bund

Kitchen staff, refugee emergency housing (Rathaus Wilmersdorf)

Berlin, Germany

2015 – 2017

St. John Ambulance Society

First aid response team

Durham, UK

2013 – 2014

Multicultural Youth and Integration Center mji e.V.

Volunteer, Homework helper

Berlin, Germany

2012 – 2015