



Leticia Magalhaes

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RESEARCH EXPERIENCE

January to April, 2019

Intern at the Optical and Wireless Transmission Research Group

Corning Incorporated, Sullivan Park, Corning NY.

- Participated in modeling and experimental work in integrated photonics.
- Worked on an exploratory project to design a short integrated photonic coupler robust to misalignment.

2017 – 2018

Undergraduate Research Internship

Optical Communications Laboratory, State University of Campinas.

- Project: *Self-aligned Photonic Couplers Based on Optical Forces*. Advised by professor Paulo Dainese. Undergraduate Student Researcher scholarship granted by FAPESP.
- The goal was to design a photonic coupler self-aligned by optical forces. By designing the waveguides to favor the excitation of attractive modes, I investigated requirements for self-alignment.

2016 – 2017

Undergraduate Research Internship

Optical Communications Laboratory, State University of Campinas.

- Project: *Study and Fabrication of Photonic Nanospikes*. Advised by professor Paulo Dainese. Undergraduate Student Researcher scholarship granted by PIBIC.
- Developed the fabrication of photonic nanospikes, measured and simulated its self-alignment by optical forces in the core of a photonic band-gap fiber.

For more information, please visit: www.leticiamagalhaes.science/AboutMe.html and www.leticiamagalhaes.science/ScientificPortfolio.html.

EDUCATION

2019 – currently

M. Sc. Applied Physics

Device Research Laboratory, State University of Campinas.

Expected graduation on July 2021. Coursework included: quantum mechanics, scientific writing, material sciences, and topics in optics and photonics.

- Dissertation subject: Brillouin Scattering in Microspheres Encased by Alumina thin films. Advised by professor Gustavo Wiederhecker.
- GPA 4.00 out of 4.00.

2014 – 2019

B. Sc. Engineering Physics with emphasis in Optoelectronics

State University of Campinas.

- Coursework included: electronics, optics, computational physics, lasers, non-linear optics, vacuum technologies, and more.
- GPA 0.85 out of 1.00.
- Ranked 2nd out of 15 students in Engineering Physics class.

- 2014 – 2019 **B. Sc. Physics**
State University of Campinas.
- Coursework included: electromagnetism, quantum mechanics, solid state physics, statistical physics, and more.
 - GPA 0.85 out of 1.00.
 - Ranked 6th out of 155 students.

SKILLS AND EXPERIENCE

- Simulation** **Comsol Multiphysics:** 4+ years of experience with Comsol. Proficient in the physics: Electromagnetic waves, Solid Mechanics and PDE Interfaces.
Lumerical: Beginner level.
- Programming Languages** **Python:** Proficient with 2+ years of experience. Used for: data analysis, data visualization and equipment control via pyVisa for automated experiments.
Mathematica: Proficient with 5+ years of experience.
Matlab: Intermediate. Used for interfacing with Comsol via LiveLink.
- Experimental** **Clean Room:** Trained at the Cornell NanoScale Science and Technology Facility. Additionally, I have experience with HF etching of nanospikes.
Focused Ion Beam and Scanning Electron Microscope: Trained at Center for Semiconductor Components of the State University of Campinas.
Fiber Optics: Experience with optical fiber manipulation, taper pulling, and assembling optical setups.
- 3D modelling** **Blender:** Intermediate level. You can find some of my creations at http://www.leticiamagalhaes.science/w_3D.
- Languages** **English:** Fluent. **TOEFL iBT score: 110/120.**
Portuguese: Native.

AWARDS

- 2018 **Honorable Mention at the São Paulo School of Advanced Science on Frontiers in Lasers and Their Applications**
For the work "Photonic Couplers Based on Optical Forces".
- 2017 **Scientific Merit Prize - XXV Scientific Initiation Congress of UNICAMP**
For the project "Study and Fabrication of Photonic Nanospikes". This award was given to the top 20 out of 1698 projects executed during the year and presented at the congress.
- 2016 **Honorable Mention - XXIV Scientific Initiation Congress of UNICAMP**
For the project "Mobile Spectrograph on a smartphone camera". This award was given to the top 40 out of 1711 projects executed during the year and presented at the congress.

PUBLICATIONS

Jarschel, P.F., Magalhaes, L.S., Aldaya, I., Florez, O. and Dainese, P., 2018. Fiber taper diameter characterization using forward Brillouin scattering. *Optics letters*, 43(5), pp.995-998.

LEADERSHIP AND EXTRACURRICULAR

2019 President of the UNICAMP Optical Society Students Chapter

Managed 23 members, organized activities ranging from an international conference to outreach activities. The largest events held in my term were:

- *International OSA Network of Students (IONS) and Escuela Latinoamericana de Optica*, hosting 119 attendees from 7 different countries. My responsibilities included: working with invited speakers, being in charge of the budget, requesting grants and sponsorship, assisting attendees with housing, funding, and paperwork.
- *Fisica nas Ferias*, a conference for high-school students. For five days, 102 students attended courses on optics, cosmology, medical physics, solar cells, and superconductivity. This was a joint effort with the Physics Institute at UNICAMP.

2017 Academic Director of the Physics Institute Students' Union

Organized welcome events for incoming college students. Coordinated voting of outstanding professors to award and recognize teaching efforts by the faculty members.

2015 Peer Tutor for Calculus I at State University of Campinas

Provided tutoring of undergraduate students.

2015 Chief Financial Officer at Quanta Jr

Quanta Jr is a physics junior enterprise. There, I supervised two financial assistants to manage the budget, cash-flow, contracts, and other legal aspects of the enterprise.

2014 Financial Assistant at Quanta Jr

Worked on quotation for expenses, organized cash-flow reports.

REFERENCES

Advisor Dr. Gustavo Wiederhecker - Professor at the State University of Campinas.

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Previous Supervisor Dr. Paulo Dainese - Research Director Optics and Wireless Transmission at Corning Incorporated.

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