

Pepa Montero Jimena

📍 Madrid, Spain ✉️ pepamonterojimena@gmail.com ☎️ +34-633-32-07-07 🌐 [pepamontero](#)
[🔗 pepamontero.vercel.app](#)

Profile

Mathematics graduate currently working as a full-time researcher while pursuing an MSc in Formal Methods. Focused on formalized mathematics and theorem proving using Lean 4, with experience in formalizing advanced results and contributing to large-scale collaborative projects like Mathlib. Interested in AI-assisted formalization and the use of formal methods to improve the reliability of AI systems.

Education

MSc	Master in Formal Methods in Computer Science Complutense University of Madrid informatica.ucm.es 🔗	Oct 2025 – CURRENT Madrid, Spain
BSc	Bachelor Degree in Mathematics Complutense University of Madrid matematicas.ucm.es 🔗	Sept 2019 – July 2025 Madrid, Spain

Experience

Researcher at Basotek S. Coop. BASOTEK. S. COOP. zoocanica.es 🔗	Sept 2024 – CURRENT Madrid, Spain
• Research in number theory, focused on the properties of prime numbers and their potential application in data compression algorithms. • Formalized selected results from this research using proof assistants (Lean). • Preparation of technical documentation and academic texts using LaTeX. • Collaboration in a bilingual (English–Spanish) research environment.	

Projects

Quotient Manifolds in Lean	Dec 2025 – CURRENT Quotient Manifolds Project 🔗
• Contributor to the <i>Quotient Manifolds</i> project initiated at ItaLean 2025 🔗, focused on formalizing quotient constructions in differential geometry. • Implemented formal results and submitted PR #35653 🔗 (now merged to Mathlib) and PR #40727 🔗 (under review).	
Formalization of Urysohn's Lemma Bachelor's Thesis	June 2024 – July 2025 Full report in Verso 🔗
• Independently formalized several results in general topology, developing experience with Lean 4 proof techniques. • Achieved a complete and original formal proof of Urysohn's Lemma.	
Co-Organizer of MadLean	2025 – CURRENT MadLean website 🔗
• Co-organizer of MadLean, the first regular Lean meetup in Madrid. • Organizing talks, study sessions and group projects around Lean and formalized mathematics. • Preparing an introductory course about Lean for CompuMates 2026 🔗 at Complutense University of Madrid.	

Autoformalization Workshop: Fermat's Last Theorem in Lean

July 2026

- Participated in a workshop in London for Kevin Buzzard's **FLT** project, using AI assistants to autoformalize 1980s-era results.
- Optimized and simplified AI-generated proofs on the Tate curve, submitting [PR #1091](#), and extracted and generalized reusable lemmas into standalone Mathlib contributions: [PR #41502](#) and [PR #41498](#), both merged.

[FLT Project](#)

Languages

Mother tongue: Spanish

English: C2 Level (Proficient)

Technical Skills

Lean4

C++

Java

R

Maude

Bash

LaTeX

Git

Python

Prolog

Liquid Haskell

Dafny