

# Peter A. Sayegh

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## EDUCATION

- 
- Columbia University** New York, NY
    - *MS in Electrical Engineering - Tesla Scholar* August 2025 - Present

Courses: Digital Signal Processing, Analog Electronic Circuits, Power Electronics, MOS Transistors, Power Systems Analysis
    - **École Polytechnique** Palaiseau, FR
      - *BS in Mathematics and Physics (GPA: 3.75/4.0)* September 2022 - June 2025

Courses:

        - **Mathematics:** Analysis, Algebra, Statistics, Convex Optimisation and Optimal Control, Stochastic Processes
        - **Physics:** Mechanics, Electrodynamics, Wave Optics, Quantum Physics, High Energy Physics, Thermodynamics and Statistical Physics, Condensed Matter Physics
        - **Computer Science:** Python I, Python II, Algorithms, Numerical Analysis, Web Programming, Object-Oriented Programming in C++, Machine Learning

## RESEARCH EXPERIENCE

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- **École Polytechnique - Center for Theoretical Physics (CPhT)** Palaiseau, FR
    - *Undergraduate Research Project - Magnetic Levitation Systems* February 2024 - July 2025
      - Constructed scaled experimental Maglev train prototype and performed force analysis using magnetic dipole interactions, validating theoretical predictions against empirical data with 96% accuracy
      - Implemented numerical optimization algorithms to determine passenger capacity limits, successfully predicting real-world EMS train specifications within 2% error of Shanghai Maglev capacity
  - **École Polytechnique - Hydrodynamics Laboratory (LadHyX)** Palaiseau, FR
    - *Bachelor Thesis Research Intern* January - March 2025
      - Developed neural network framework to solve complex wave propagation problems, achieving less than 0.5% error through adaptive training algorithms and real-time parameter adjustment
      - Validated computational models against theoretical solutions, leading to forecasting of extreme wave events
  - **École Polytechnique - Irradiated Solids Laboratory (LSI)** Palaiseau, FR
    - *Undergraduate Research Assistant* January - June 2024
      - Developed MATLAB algorithms to simulate high-frequency wave propagation in nanoscale materials
      - Analyzed signal attenuation and reflection characteristics in thin-film structures, optimizing pulse compression techniques for ultrafast applications
      - Investigated energy transfer dynamics and interface effects for high-frequency signal processing in nanodevices

## PROFESSIONAL EXPERIENCE

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- **TriSpan LLP** New York, NY
    - *Private Equity Intern* July - August 2024
      - Streamlined P&L reporting by analyzing and simplifying financial statements across portfolio companies
      - Conducted financial modeling including LBO analysis, comparable company analysis, and precedent transactions
      - Identified national investment opportunities and prepared detailed presentation decks for senior management
      - Drafted valuation reports for restaurant industry portfolio companies, supporting investment decisions
  - **Academic Tutor** Paris, FR
    - *Private Mathematics and Physics Instructor* October 2021 - June 2024
      - Tutored high school and university students in advanced mathematics and physics concepts
      - Developed customized lesson plans and teaching materials tailored to individual student needs
      - Improved academic performance by 42% on average through targeted preparation and problem-solving strategies

## TECHNICAL SKILLS

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- **Programming Languages:** Python, C++, Arduino, R, MATLAB
  - **Web Development:** HTML, CSS, JavaScript, QML
  - **Data Science & Machine Learning:** TensorFlow, Keras, JAX, Optax, scikit-learn, NumPy, SciPy, pandas, statsmodels
  - **Scientific Computing:** QuTiP, Scikit-HEP, PySpice, DSPy
  - **Tools & platforms:** LATEX, Git, Jupyter

## LANGUAGES AND CERTIFICATIONS

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- **Languages:** French (Native), Arabic (Native), German (Advanced), Spanish (Intermediate)
  - **MathWorks:** MATLAB Onramp
  - **Wall Street Prep:** Accounting & Financial Statement Analysis
  - **Udemy:** Signals and Systems: From Basics to Advance