# ANDREA FABRE

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## EDUCATION

**Massachusetts Institute of Technology (MIT), Cambridge, MA**
Candidate for Chemical Engineering Major and Political Science Minor GPA:4.5/5.0 June 2012

**Relevant Courses**

Fluid Mechanics
Chemical Engineering Thermodynamics
Introduction to Chemical Engineering
Principles of Chemical Science
Thermodynamics
Differential Equations

## EXPERIENCE

**Laboratory of Atomistic and Molecular Mechanics; Massachusetts Institute of Technology, Cambridge, MA** January 2010-Present
*Intermediate Filament Simulation's researcher*

- Discover Intermediate filaments' influence on the cell's behavior.
- Use computational modeling and simulations to analyze the effects of human vimetin protein filaments mutations.

**BCS/McGovern Institute for Brain Research; Massachusetts Institute of Technology, Cambridge, MA** October 2009-December 2009
*Video Analyst.*

- Development of an automated computer vision system for the monitoring and analysis of mouse behavior in their home cage.
- Analyze and score mice videos for training the computer system.
- The software confused similar movements and had difficulties detecting them when having soft light or darkness.

**Institut Quimic de Sarriá, Barcelona, Spain** May 2009-August 2009
*Rapid Manufacturing team member.*

- Production of a biocompatible powder and binder to use for 3D printing.
- Used the 3D Printer to make complex objects.
- Analyzed the composition of Z-Corp binder and powder for the 310 Plus printer.
- Produced hydroxyapatite and industrial printer binder at the Institute's laboratory.

**White Laboratory; Massachusetts Institute of Technology, Cambridge, MA**
*Research Assistant* . January 2009-June 2009

- Fat and cancer cell behavior analysis.
- Grew forty 3T3-L1 cell and thirty cancer cell cultures for differentiation.
- Analyzed the proteins synthesized when the cells were exposed to different types of conditions.
- Significant fluctuations in protein production were observed after a variety of chemical exposure.

**Massachusetts General Hospital Richard B. Simches Research Center, Boston, MA**
*Research assistant for the Search for Extraterrestrial Genomes project.* September 2008-January 2009

- Finding a primer that would bind to any living organism's 16S gene.
- Collected genomic data from different organisms.
- Analyzed the data for similarities on the 16s gene.
- Performed DNA extraction and analysis from ordinary soil.
- A complex primer was found, but needs some final corrections.

**Massachusetts Institute of Technology, Cambridge, MA**
*Volunteer tutor for the First Generation for College program.* August 2008-May 2009

- Clarified certain biology, mathematics and chemistry concepts to high school students.
- Advised and encouraged students to pursue a career.

**Edinburg North High School, Edinburg, TX**
*AP Biology tutor and UIL Biology helper.* August 2007-June 2008

- Taught advanced biology to ninth and tenth year students.
- Prepared students for advanced biology tests.

## RELEVANT SKILLS

- **Languages:** fluent Spanish, conversational English, intermediate French, and intermediate Catalan.
- **Programming:** some MatLab and Java experience.

## ACADEMIC HONORS

- MIT Laureates and Leaders Scholar.
- Scholar Invited to the Presidential Inauguration
- University Interscholastic League –UIL gold medal on physics and silver medals on chemistry and biology (2006)
- Superintendent's Academic Excellence Award (2006, 2007, 2008)

## INTERESTS AND ACTIVITIES

- Brain Trust Networking Chair
- MIT Mujeres Latinas Vice President
- NSUW Internal Relations Chair
- Community service, Amnesty International member.
- Latino Cultural Center Officer
- SEBC marketing focus group