

# Pilar Cuadros-Arias

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## EDUCATION

California State Polytechnic University, Pomona (*Cal Poly Pomona, CPP*)

(Fall 2024)

Bachelor of Chemical Engineering GPA 3.0

Minor in Microbiology & Materials Engineering

## EXPERIENCE

K-12 STEM in Bhumi Devi School Educational, Nepal

*Teacher Assistant*

(January 2018 – May 2018)

- Educated K-12 students on different chemical reactions, human biological functions, design optimization with physics applications, and technological science behind digital film cameras.
- Collaborated with school administrators, Chemistry, Physics, and Biology teachers to compose appropriate lesson plans and projects for students' different levels of education.
- Fundraised \$4,000 for school supplies and for the school's reconstruction from a devastating earthquake in 2017.

## SKILLS

- Technical: MATLAB, CAD, Solid Works, Excel, C++, Microsoft Word, PowerPoint, EarthSmart LCA
- Creative: Lightroom, Adobe Photoshop, Canva
- Language: Bilingual English and Spanish,
- Certificates: CPR and First Aid certified by the American Red Cross, OSHA 10

## HIGHLIGHTS

- Awards: California State Senate Scholastic Achievement Award
- Rankings: #2 out of 170 ambassadors for most unique donors and #1 for most clicks on unique link, #4 out of 48 registered university teams, runner up in Social Media Challenge for matching funds.

## PROJECTS

Catalytic & Biomass Pyrolysis, Engineering Senior Research

*Finance Manager & Research Lead*

(May 2023-Present)

- Conducted extensive research on oil regeneration and design optimization for co-pyrolysis feeds for biomass and plastic utilizing a thermal reactor.
- Examined the reactor scheme to identify a method to decrease catalyst cracking by measuring and comparing temperatures, reaction rates, and yields.
- Planned enhancement of porosity of biochar product from biomass pyrolysis for water filtration and waste management.

Reverse Osmosis & Oil and Water Filtration, Engineering Senior Research

*Computational Analyst and Research Developer*

(May 2023-Present)

- Forecasted efficiency and error of Reverse Osmosis systems for the City of Santa Monica, Chino, and ROTEC utilizing MATLAB and Excel.
- Formulated a Titanium and Aluminum composite filter to increase the oleophobicity by high-temperature sintering.

## **SERVICE & ACTIVITIES**

Orange County Sustainability Decathlon, Cal Poly Pomona

( February 2023- Present)

### ***Head of Fundraising, Communications & Marketing (OCSD23)***

- Corresponded with key industry sponsors for fundraising and requested (1) up to 150,000 in cash, (2) in-kind Team Roots donations for sustainable materials, expertise labor to build an affordable house (The Roots House) to combat global warming and California Housing Crisis.
- Contacted media and press to raise publicity for our team and promote awareness.
- Conducted Life Cycle Analysis (LCA) using EarthSmart software, on the 4-stages: Production, Construction, Use, and End of Life stages of the Roots House.
- Led and strategized social media marketing efforts for Instagram, Facebook, YouTube, Twitter, and TikTok for Team Roots CPP's, first Sustainability Decathlon team.
- Conceptualized a consistent aesthetic utilizing Canva, Adobe Express, and Later to promote professional branding among social media posts and flyers.
- Campaigned during the team's vital events (CPP Giving Day, Fairs: Sustainability, MEP-WiSE, Club & Resource) to promote the team's success and attract the public.
- Enhanced community design and research for the house, the community's garden, parking structures, and playgrounds.

Society of Women Engineers, Cal Poly Pomona

### ***External, Internal & Corporate Committee Member***

(August 2020-Present)

- Advised mentees with their academic struggles, and personal conflicts in order to ensure the future success of female engineers.
- Arranged End-of-the-Year banquet activities between chapter members and vendors to improve membership quality and improve students.

Modern Empowerment of Women Scientists, Cal Poly Pomona

### ***President & Scheduler***

(August 2021-August 2022)

- Organized all club workshops, publicity, events, and activities to encourage the growth of women scientists.
- Coordinated duties and discussions between executive board members to fulfill our goal of creating a more diverse and supportive scientific community.

Society of Hispanic Professional Engineers, Cal Poly Pomona

### ***Technical Design Project Leader***

(August 2020- August 2022)

- Designed an automated vehicle to serve as a remote medicine distribution system for rural areas.
- Facilitated project communications between members and clients in order to accomplish deadlines and project goals.

Engineers Without Borders, Cal Poly Pomona

### ***Member & Research Development Team***

(August 2021-May 2022)

- Assisted in designing, funding, and budgeting for The Guatemala Project which provides electricity to two houses in the Mayan Guatemalan community using solar panels.
- Facilitated communications between the Guatemalan solar panel research team, external contractors, and Engineers Without Borders, USA.