

# Palak Agarwal

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## EDUCATION

**UNIVERSITY OF PENNSYLVANIA, School of Design** Aug 2018 - May 2021  
Master of Urban Spatial Analytics (MUSA) & Master of Landscape Architecture (MLA)

**RASHTREEYA VIDYALAYA COLLEGE OF ARCHITECTURE, Bangalore, India** Aug 2012 - July 2017  
Bachelors of Architecture

## PROFESSIONAL EXPERIENCE

**Institute for Development Impact, Washington DC** May 2023 – Present  
**Geospatial Data Scientist**

- Built an LLM model using langchain, llama and OpenAI API to create a chatbot that was trained on over 5000 project documents. The model was used to extract and organize themes that will help inform future projects and their implementation.
- Working with the GREEN network to develop a dashboard at the intersection of climate and education. Built ETL pipelines to create a database of climate, education, and socio-economic indicators which will be incorporated into the dashboard after predictive analytics is applied.
- Developing a data collection and management tool to help different projects across the MEL portfolio.
- Collaborating with data collectors in the field quarterly to create KPIs that talk about the economic and social impact of our projects in third-world countries.
- Working with farmers both in Ghana and Indonesia, to develop carbon accounting tools and inform them on good agricultural practices to adopt.

**US Ignite, Washington DC** July 2021 – May 2023  
**Geospatial Data Scientist**

- Worked with DoD on multiple projects and bases around the country. Some use cases include - helping them make decisions on base closure, energy savings, heat management during training.
- Collaborated with teams to gather requirements, develop visual prototypes, and create system architecture, and models. Lead data scientist on the Inclement Weather App using traffic crashes, congestions, and weather conditions to run a fixed-effect Poisson regression model that indicates how safe it is to be on the road given a weather event. The app won the Intelligent Infrastructure Application of the Year (2023) by Topio Networks.
- Collaborated with the city and county of Miami-Dade to develop an economic recovery tool that offers real-time economic strategies to community leaders recovering from COVID-19. Modeled the Quarterly Unemployment Forecast through an exploration of time series, cross-sectional, and deep learning models with an accuracy of 90%.
- Built a National Broadband tool from scratch and defined the steps and algorithms to find the most functional model that will highlight each census tract to its twin in terms of socioeconomic status and uses time-series modeling to help predict economic growth within a tract. Experimented with multiple clustering methodologies and validated them through a benchmark analysis to ensure broadband is a function of socioeconomic health.
- Mentored and led multiple capstone teams of 3-7 graduate students on various projects and topics.
- Worked with universities to develop a project scope that aligned with the university's and US Ignites's interests.

**Biohabitats, Denver** Jan 2022 – July 2022  
**Carbon Accounting Researcher**

- Researched and evaluated carbon accounting tools in landscape architecture and ecology.
- Developed and proposed a tailored technique resulting in integrating a new product into their ArcGIS toolset, which led to improvement in data visualization capabilities and a 30% reduction in time required for carbon accounting analysis.

### University of Pennsylvania

**Research Assistant, Ian McHarg Center** Jan 2020 – July 2021

- Proposed and spearheaded a research project analyzing the global impacts of the Green New Deal.
- Utilized Python and ArcGIS to create comprehensive data visualizations, enhancing accessibility and understanding of complex datasets.

**Teaching Assistant, Media III: Flows(linear/non-linear)** Aug 2020 – Dec 2020

- Taught and instructed 45+ students in ArcGIS Pro and Rhino + Grasshopper.

**Research Assistant** Jan 2021 – July 2021

- Utilized ArcGIS Pro and Python to analyze Sentinel images to generate multi-spectral signatures and match it to the spectral signature of different land cover types for classification.
- Deployed an app on Google Earth Engine to automatically update classification based on new satellite data.

**Reed Gilliland Landscape Architecture, Petaluma, CA**

**May 2019 – Aug 2019**

**Summer Design Intern**

- Assisted in the design of a residential project through conceptual, design, and construction development phases.
- Proposed conceptual design and made views for two competition proposals

**Bhumiputra Architecture**

**July 2016 - June 2018**

**Architect**

- Managed and supervised the Parinaam Foundation account, designed over 20 prototypes of varied functions for underprivileged communities. Analyzed demographics and socio-economic factors of Tier 2 cities across India to identify the need and the site.
- Integral member in an international competition for the design of the National War Museum; shortlisted to top 8.
- Supervised and assisted in the design of a high end residential projects as part of the conceptual design and design development team

**SKILLS**

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- **Geospatial Analytics:** ESRI ArcGIS Enterprise, ArcPy, Google Earth Engine, Environmental Modeling, QGIS
- **Programming Languages:** R Studio, Python, JavaScript, HTML, C++, SQL, Git
- **Statistical Analysis:** Machine learning algorithms, Predictive Modeling, Spatial Statistics, Artificial Intelligence
- **Data Visualization:** HTML/CSS, Carto, ArcGIS, Adobe Suite, Tableau, Python
- **Satellite Imagery/ Remote Sensing:** ArcGIS Spatial Analytics Toolbox, Image Processing (Python), GEE
- **Ecological:** Sustainability, Carbon Accounting, Land Use, Environmental Planning & Restoration, Hydrology, Design