

# MOATAZ ABDELAAL

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Languages: English (C1), German (B2), Arabic (native)

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## SUMMARY

Researcher and Data Visualization Specialist with a background in user-centered design, data analysis, and interactive tools. Experienced in interdisciplinary collaboration, user research, and developing decision-support systems through visualization and analytics.

## SKILLS

- **User Research:** Usability testing, mixed-method evaluation, surveys, workshops, interviews
- **Data Analysis:** R, Python (Jupyter), Excel; EDA, descriptive & inferential statistics
- **Visualization:** D3.js, Chart.js, SciChart, Power BI
- **Frameworks & Libraries:** .NET, WPF, React, Angular
- **Programming Languages:** C#, Java, PHP, HTML, CSS, JavaScript
- **Databases:** SQL, MySQL
- **Collaboration & Teaching:** Interdisciplinary, tutoring, manuscript writing, peer reviewing

## PROFESSIONAL EXPERIENCE

**Freelance Researcher & Visualization Specialist** | Remote 2025-Present

- Working independently on projects involving data analysis, visualization, and user research
- Stack: React, Chart.js, Power BI

**Data Visualization Researcher** | Visualization Research Center (VISUS), Germany 2018-2024

- Developed novel techniques for network dataset analysis
- Designed and implemented visual interfaces for architectural and engineering decision-making
- Conducted user research, requirements analysis, and usability testing
- Mentored and tutored students
- Stack: Varied per project (see examples below)

**Visiting Researcher** | Visualization Design Lab, University of Utah, USA 2022-2022

- Prototyped novel techniques for detecting patterns in genealogical and geographic datasets
- Stack: Vue.js, D3.js

**NET Web Developer (Part-Time)** | STORESERVER, Stuttgart, Germany 2017-2017

- Optimized backend performance by implementing multithreading
- Developed new features and fixed bugs
- Stack: .NET, C#, HTML, JavaScript, SQL

**Teaching Assistant** | Helwan University, Egypt 2011-2015

- Mentored and tutored students
- Implemented an internal LMS using PHP and MySQL

**Java Web Developer** | Harf, Cairo, Egypt 2011-2012

- Maintained the company's learning platform (Tadarus)
- Stack: Java, Servlets, Spring, SQL

## SELECTED PROJECTS

### **Assessing Visualization Literacy of Domain Experts** *(User Research, Evaluation)*

Contributed to a two-part study that assessed data visualization literacy among architects, engineers, and social scientists through a standardized literacy test and semi-structured interviews.

### **Creativity Workshops** *(Participatory Design, Workshop Facilitation)*

Facilitated a creativity workshop with architects to explore their current workflows and identify opportunities for visualization. Used structured activities—including wishful thinking, brainstorming, and visual analogies—to elicit design needs and data-driven tool ideas.

### **Dynamic Networks Visualization** *(Comparative Visualization, Web Development)*

Built an Angular/Node.js app with D3.js to compare four network visualization methods; generated test datasets using R.

### **Exploring the Design Space of Fiber Structures** *(Tool Development, Scientific Visualization)*

Developed a WPF dashboard app to visualize fiber structures in architecture; used SciChart, OpenGL, and SQLite.

### **Fitness Landscape Explorer** *(Tool Development, Case Study)*

Led the design and development of a desktop tool for analyzing high-dimensional design spaces, including requirements gathering, technical oversight, and a case study evaluation.

### **Qualitative Study with Architects** *(User Study, Visualization Evaluation)*

Led a qualitative lab study to evaluate how different visualization techniques and projection methods influence architects' exploration of a design space.

### **Quantitative Visualization Study** *(User Study, Comparative Evaluation)*

Led a quantitative user study comparing network visualization techniques (e.g., bipartite, node-link, matrix), providing empirical evidence to inform the design and selection of network visualization approaches.

### **Thematic Analysis** *(Literature Review, Qualitative Analysis)*

Contributed to a large-scale literature review by thematically coding 127 visualization papers to analyze how scalability is defined and justified.

### **Timber Stakeholders Explorer** *(Network Visualization, Web Development)*

Developed a single-page web app (D3.js, Leaflet) mapping stakeholder relationships in timber construction; collaborated with domain experts.

## EDUCATION

PhD in Computer Science   University of Stuttgart, Germany	Expected 2025
MSc in Computer Science   University of Stuttgart, Germany	2017
BSc in Software Engineering   Helwan University, Egypt	2010