

# MONA ASCHA, MD, MS

Cleveland, OH, USA | [mona.ascha@gmail.com](mailto:mona.ascha@gmail.com) | 440-724-6245 | [LinkedIn](#) | [Github](#) | [PubMed](#) | [Google Scholar](#)

## SUMMARY

Dynamic physician with specialized training in plastic surgery, trauma, critical care, and gender-affirming care. Experienced in high-stakes clinical environments and cross-functional leadership. As a medical advisor and product collaborator, I bridge clinical insight with innovation across AI, medtech, and health startups. I work closely with LLMs in the healthcare space, including product requirements, prompt engineering, tuning, building RAG corpuses, evaluation, and output refinement. I also bring hands-on product experience across early-stage development. Skilled in data science, machine learning, and clinical research, with 50+ PubMed-indexed publications. Committed to advancing equitable, evidence-based care for vulnerable populations.

## EDUCATION

### Northwestern University School of Professional Studies | Chicago, IL

#### Master of Science in Data Science

- Specialization in machine learning and artificial intelligence
- Capstone with multifold objectives: providing patients with cervical cancer risk scores using demographic and medical information, find-a-provider tool to obtain cervical cancer screening with local providers, and pap smear image classification. Developed risk factor tool using ensemble modeling techniques, with SHAP scores for explainability. Image classification with CNNs. Deployed mobile application using Streamlit interface.

### Case Western Reserve University School of Medicine | Cleveland, OH

#### Doctorate of Medicine

- Supplemental coursework in pathology, honors with distinction in research, Gita Gidwani Award for exemplary performance in Obstetrics and Gynecology, Anatomy Camp Leader, Social Chair

### Duke University | Durham, NC

#### Bachelor of Science in Economics and French

## PROFESSIONAL EXPERIENCE

### Clinical AI Product Consultant | Doximity

#### Remote | June 2025 – Present

- Led end-to-end product development of AI-powered physician tools, including DoxGPT (medical research LLM) and an ambient AI clinical scribe.
- Performed prompt engineering with DSPy library for various model tasks.
- Curated and ingested guidelines, drug references, and clinical data for RAG pipelines; developed prompt libraries and rubric-based evaluation criteria to improve LLM output quality.
- Reviewed, tested, and compared fine-tuned models head-to-head, providing structured feedback to enhance accuracy, relevance, and alignment with physician workflows.
- Built Snowflake queries and Hex notebooks to analyze AI tool usage patterns, perform exploratory analyses, and delivering insights that informed product strategy and feature development.

### AI Dermatology Consultant | DermaSensor

#### Remote | August 2025 – Present

- Supported clinical and regulatory initiatives, pre-submissions, and protocol development for an NP/PA reader study undergoing 510(k) submission for device label expansion.
- Engaged in real-world evidence generation by creating and managing a clinical registry data collection system and recruiting with commercial sites.
- Provided Medical Affairs support by interfacing with physicians on novel use cases, coordinating investigator-initiated studies, and attending medical conferences.

### Clinician Scientist | SMART Health

#### Remote | February 2025 – Present

- Worked with engineering and product teams to develop clinical large language model integration with patient healthcare records for a mobile application designed to provide tailored health and nutrition recommendations.
- Served as clinical advisor on AI use cases, ensuring clinical integrity, user trust, and adequate product design.

**Surgical, Trauma, and Burn ICU Physician | MetroHealth Hospital**

**Cleveland, OH | November 2023 – Present**

- Deliver high-acuity care to critically ill patients in the surgical ICU, burn ICU, and trauma ICU, managing complex postoperative, trauma, and burn cases.
- Serve as primary on-call provider for a census of 20-40 critically ill patients per night, leading patient management, emergency interventions, and bedside procedures.
- Perform advanced ICU procedures, including central line placement, arterial line insertion, chest tube insertion, and bedside point-of-care ultrasound.

**Medical Science Liaison | Checkpoint Surgical**

**Cleveland, OH | October 2023 – March 2025**

- Provide expert-level surgical support to surgeons at leading medical institutions across the U.S., ensuring optimal product use and patient outcomes.
- Designed and launched a comprehensive distributor training and education program, enhancing product knowledge and clinical support capabilities.
- Collaborate on planning and development of four annual cadaver labs and surgical education courses.
- Assist with clinical trials evaluating brief electrical stimulation for nerve decompression and repair, supporting research efforts to advance nerve surgery outcomes.

**Data Analyst | Norwich University Applied Research Institutes**

**Remote | November 2023 – November 2024**

- Developed machine learning models leveraging natural language processing (NLP) with SpaCy and TF-IDF models to detect propaganda in 12,000 Russian news articles, (F1 score=0.87).
- Built a sepsis prediction model using the MIMIC-IV dataset with 26 relational tables and over 300 million clinical observations, achieving top model performance with XGBoost (AUC=0.834, F1 score=0.777).

**Gender Affirmation Surgery Fellow | Johns Hopkins Hospital**

**Baltimore, MD | August 2022 – August 2023**

- Performed approximately 200 gender-affirming surgeries and completed over 500 clinic visits, delivering compassionate, patient-centered care for transgender and non-binary individuals.
- Participated in administrative leadership, contributing to program development, clinical workflow optimization, and patient care protocols to enhance care delivery.
- Engaged in educational activities, including leading didactic sessions, mentoring trainees, and presenting at institutional conferences.
- Conducted research projects focused on advancing gender-affirming surgical techniques and patient outcomes.

**Pediatric Surgery Moonlighting Physician | Lurie Children's Hospital**

**Chicago, IL | July 2020 – July 2022**

- Delivered emergent and operative care to pediatric patients across the emergency room, intensive care unit (ICU), inpatient ward, and trauma bay, ensuring timely, high-quality medical and surgical interventions.
- Primary on-call provider for a patient census of 20-30 inpatients, including 5-10 critically ill patients, 5-10 emergency room consults, and 1-2 operative cases per shift, managing a range of acute surgical conditions.

**Post-doctoral Research Fellow | Northwestern Memorial Hospital**

**Chicago, IL | July 2020 – July 2022**

- Led clinical research projects related to gender-affirmation surgery, breast reconstruction, and targeted muscle reinnervation, managing data collection, statistical analysis, and manuscript preparation, resulting in 10+ PubMed-indexed publications.
- Mentored medical students and research trainees, providing guidance on research methodology, data analysis, and manuscript development.
- Participated in departmental didactics, anatomy labs, and research meetings.

**Plastic Surgery Resident | University Hospitals Cleveland Medical Center**

**Cleveland, OH | July 2017 – July 2020**

- Completed comprehensive clinical rotations across plastic surgery, general surgery, burn surgery, emergency medicine, dermatology, anesthesiology, otolaryngology, and oral and maxillofacial surgery, performing over 1,500 surgeries and procedures.

- Participated in clinical research projects, contributing to peer-reviewed publications and conference presentations in areas such as reconstructive surgery, burn care, and trauma management.
- Actively engaged in didactic conferences, including surgical case reviews, morbidity and mortality meetings, and journal clubs, fostering continuous learning and clinical skill development.
- Mentored medical students and junior residents, providing clinical teaching, hands-on procedural training, and professional development guidance.

## ADVISORY EXPERIENCE

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### Medical Consultant | Micro1

Remote | October 2024 – November 2025

- Contributing physician in OpenAI's HealthBench evaluation. Contributed to advanced human data initiatives for OpenAI, designed to improve the safety of AI models on health-related questions. Responsibilities included evaluating the accuracy and quality of hundreds of model-generated health-related responses. These efforts helped ensure the safety of AI solutions.

### Medical Consultant | Ecotera Health

Remote | November 2024 – Present

- Reviewed and provided expert recommendations for grant proposals and manuscript submissions on behalf of a biotech and sustainability start-up developing solutions for environmental health, namely microplastics.

### Consultant | Deep Surface AI

Remote | January 2024 – July 2024

- Provided expert recommendations to enhance the functionality of a morphology tool for facial surgery planning.

### Peer Reviewer | Journal of Craniofacial Surgery

Remote | January 2020 – January 2024

- Ad hoc peer reviewer of manuscripts relating to craniofacial surgery.

### Editor | USMLE-Rx

Remote | September 2015 – Present

- Participated in critical revision and writing of USMLE questions and web content designed for students preparing for the USMLE Step 2 Clinical Knowledge exam.
- Edited content and contributed knowledge and expertise for several editions of the key textbook used to prepare for the USMLE Step 2 Clinical Knowledge exam.

### Committee Member | CWRU School of Medicine Medical Alumni Board

Cleveland, OH | April 2025 – Present

- Participated in quarterly meetings with alumni board members to discuss the direction and initiatives of the School of Medicine.
- Discuss and execute goals on various sub-committees.

## BIBLIOGRAPHY – SELECTED WORKS

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*Full bibliography available upon request, with 57 publications indexed on PubMed.*

- Borsting E, Desimone R, Ascha MS, **Ascha M**. Applied Deep Learning in Plastic Surgery: Classifying Rhinoplasty with a Mobile App. *Journal of Craniofacial Surgery*. 2020;31(1):102-106. PMID: 31633665.
- **Ascha M**, Sasson DC, Sood R, Cornelius JW, Schauer JM, Runge A, Muldoon AL, Gangopadhyay N, Simons L, Chen D, Corcoran JF, Jordan SW. Top Surgery and Chest Dysphoria Among Transmasculine and Nonbinary Adolescents and Young Adults. *JAMA Pediatr*. 2022; 176(11): 1115-1122. PMID: 36156703.
- **Ascha M**, Ascha MS, Tanenbaum J, Bordeaux J. Risk Factors for Melanoma in Renal Transplant Recipients. *JAMA Derm*. 2017;153(11):1130-1136. PMID: 28746700.
- Michael JA, Greenberg DR, **Ascha M**, et al. Prostate specific antigen testing and prostate cancer diagnosis rates among transgender and nonbinary patients: retrospective review of a single-institution experience. *Urology*. Published online July 31, 2025:S0090-4295(25)00735-6.

- Wu SW, Katabi L, Desimone R, Borsting E, **Ascha M**. A Cross-Sectional Evaluation of Publication Bias in the Plastic Surgery Literature. *Plast Reconstr Surg.* 2024; 153(5):1032e-1045e. PMID: 37467390.
- **Ascha M**, Katabi L, Stevens E, Gatherwright J, Vassar M. Reproducible Research Practices in the Plastic Surgery Literature. *Plast Reconstr Surg.* 2022; 149(4): 810e-823e. PMID: 35196293.
- Luehmann N, **Ascha M**, Chwa E, Hackenberger P, Termanini K, Benning C, Sama D, Felt D, Beach LB, Gupta D, Kulkarni S, Jordan SW. A Single Center Study of Adherence to Breast Cancer Screening Mammography Guidelines by Transgender and Non-Binary Patients. *Ann Surg Onc.* 2022; 29(3):1707-1717. PMID: 34704183.
- **Ascha M**, Swanson M, Massie JP, Evans MW, Chambers C, Ginsberg BA, Gatherwright J, Morrison SD, Satterwhite T, Gougoutas AJ. Non-Surgical Management of Facial Masculinization and Feminization. *Aesthet Surg J.* 2019;39(5):NP123-NP137. PMID: 30383180.
- **Ascha M**, Massie JP, Morrison SD, Crane CN, Chen ML. Outcomes of Single-Staged Phalloplasty by Pedicled Anterolateral Thigh Flap versus Radial Forearm Free Flap in Gender-Confirming Surgery. *J Urol.* 2018;199(1):206-214. PMID: 28765066.
- **Ascha M**, Kurlander DE, Sattar A, Gatherwright J, Guyuron B. In-Depth Review of Symptoms, Triggers, and Treatment of Occipital Migraine Headaches (Site IV). *Plast Reconstr Surg.* 2017;139(6):1333e-1342e. PMID: 28538577.
- Le T, Bhushan V, Griffin D, **Ascha M**, Bhardwaj A. First Aid for the USMLE Step 2 CK. 11 Edition. New York, McGraw Hill, 2023.

## CORE COMPETENCIES

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- **Medical and surgical expertise** - critical care & ICU management, trauma & burn surgery, gender-affirming surgery, aesthetic & reconstructive surgery, advanced procedural skills (central lines, ultrasound-guided procedures), ethical & patient-centered care
- **Product Development and Medical Consulting** - clinical program development & SOP implementation, medical device & healthcare tech consulting, cross-functional team leadership, medical education & training, AI/tech consulting, medical device regulatory strategy (510k, RWE, reader studies)
- **AI/ML and Data Science** - clinical research & publication strategy, machine learning model development (NLP, Predictive Modeling), data analysis & visualization (Python, R, SQL), healthcare analytics & outcome improvement, AI in medicine, LLMs, generative AI evaluation, AI explainability, ethical data use & compliance
- **Personal and Professional Attributes** – ethical leadership, detail-oriented, adaptable, resilient under pressure, compassionate & empathetic, productive with minimal supervision, lifelong learner

## TECHNICAL SKILLS

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- **Python** - pandas, seaborn, matplotlib, plotly, tensorflow, keras, spacy, selenium, sci-kit learn, pytorch
- **R** - dplyr, tidyverse, ggplot, plumber API
- **SQL** - PostgreSQL, SQLAlchemy, SQLite, Snowflake
- **Excel** - analytic solver
- **Clinical Research** - design, implementation, statistical analysis, manuscript preparation, peer review

## AWARDS

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### Northwestern University Circle Scholarship | 2022

- One of three award winners selected among a pool of Northwestern University employees to receive a tuition scholarship towards the Masters of Data Science program.

### Journal of Craniofacial Surgery “Best Paper Award” | 2017

- Ascha M, McDaniel J, Link I, et al. Social and support services offered by cleft and craniofacial teams: a national survey and institutional experience. *J Craniofac Surg.* 2016;27(2):356-360.

### The Gita Gidwani, MD, Award for Obstetrics/Gynecology | 2017

- In recognition of Dr. Gita Gidwani, the first female surgeon at the Cleveland Clinic, given to the graduating student who most exemplifies integrity, compassion, and hard work.

#### **Honors with Distinction in Research | 2017**

- Given to graduating medical students with superb research accomplishments.

#### **Lepow Day Oral Presentation | 2016**

- One of twelve students selected from a pool of 130 abstracts to give an oral presentation on research findings at the annual Lepow Research Day.
- **Ascha M**, Hanouneh M, S Ascha M, et al. Transjugular intrahepatic porto-systemic shunt in patients with liver cirrhosis and model for end-stage liver disease  $\geq 15$ . *Dig Dis Sci*. 2017;62(2):534-542.

## **CERTIFICATIONS**

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- **ATLS, ACLS, BLS, PALS**
- **Medical Licenses – OH, IL, CA**

## **INTERESTS**

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- Marathons (World Marathon Majors medal), tennis leagues, improv, Rick Steves travel books, top rope rock climbing, scuba diving (PADI certified)