

Tarek Omar

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Professional Summary

Creative technologist and technical director with 10+ years of experience leading design, fabrication, and operations for museums, escape rooms, and experiential environments. Proven leader in complex projects—from concept and installation to large-scale relocations—while remaining deeply involved in building, troubleshooting, and on-site execution. Expertise in embedded systems, digital fabrication, AV integration, and team development. Skilled in managing cross-functional teams, vendors, and artists—while working alongside them as a collaborator. Runs Sky Junk — designs and sews mission-critical gear for extreme sports; brings that same focus on durability, function, and system resilience into exhibition work.

Relevant Experience

Creative Engineer

National Museum of Mathematics — New York, NY

Dec 2022 – Present

- Lead technical operations through two major relocations — including move to “MoMath on Fifth” and development of new permanent facility.
- Oversee technical design and build-out of ~70 next-gen interactive exhibits; responsible for system architecture, prototyping, and integration planning.
- Developed machine learning models to automate staff tasks and trained a team on modernization tools to improve workflow efficiency.
- Manage IT, AV, network infrastructure; coordinate RFPs, vendor selection, and hiring across locations.

Principal Software Engineer

Senet Software — Remote

Mar 2020 – Mar 2023

- Led technical team in end-to-end delivery of video games, web apps, and cloud platforms.
- Designed scalable architectures for Desktop-as-a-Service using Python, C++, AWS, and Docker.
- Applied creative problem-solving to projects spanning entertainment, enterprise, and experiential domains.

Systems Engineer (Contract)

Smart Design — Brooklyn, NY

Mar 2022 – Sep 2022

- Designed embedded systems for an AI-powered smart home appliance, integrating mechanical, electrical, and software components.
- Developed advanced gas testing rig for R&D, enhancing product quality via automated data analysis.
- Collaborated with cross-functional teams to integrate hardware, firmware, and ML inference pipelines.

Creative Technologist

National Museum of Mathematics — New York, NY

Dec 2020 – Mar 2022

- Joined post-pandemic closure to restore non-functional exhibits — played a key role in the first NYC museum reopening.
- Rebuilt legacy systems from scratch: replaced obsolete hardware/software with modern controls and materials.
- Designed hybrid A/V system enabling two-way interaction between live guests and remote audiences.
- Maintained Linux-based media servers, projectors, and networked displays under high-traffic conditions.

Technical Director, Immersive Experiences

Clue Chase — Escape Room Company — New York, NY

Jun 2017 – Aug 2020

- Upgraded 4 existing escape rooms with embedded electronics, lighting, and networked puzzles.
- Improved location's rating among enthusiasts through fail-safe logic and reliable show-control systems.
- Designed and built a new 4-room location from ground up — managed Gen 4 interactive systems.
- Used Arduino, Raspberry Pi, Philips Hue, solenoids, and sensor networks for responsive guest experiences.

Co-Founder & Lead Developer

PixelCorn — Cairo, Egypt & New York

Jun 2015 – Mar 2020

- Co-founded PixelCorn (pixelcorn.io), a smart agriculture company using IoT to monitor soil, climate, and plant health.
- Designed proprietary hardware, data pipelines, and dashboards — full stack from circuit board to cloud analytics.
- Created DIY kits to help farmers and makers start their own low-cost IoT farming systems; sold internationally.
- Hosted hands-on workshops across the U.S. and Europe teaching electronics, programming, and IoT design.

Computer Science Teacher

Explore Exceed Charter School — Brooklyn, NY

Jan 2019 – Jun 2019

- Taught computer science to grades 6–8; developed curriculum focused on computational thinking.
- Mentored students in coding and hands-on hardware experimentation.

Top-Rated Instructor (Freelance)

TakeLessons — National Tutoring Platform (Online & In-Person)

Feb 2017 – Nov 15, 2024

- Taught programming, robotics, electronics, and Linux to 100+ students aged 8–70 nationwide.
- Ranked top 1% instructor; students placed on waitlist due to high demand.
- Platform retired after Microsoft acquisition — final student sessions completed before shutdown.

IoT System Architect

NOOR Data Networks — Cairo, Egypt

Apr 2015 – Jan 2017

- Led NOOR IoT Lab, delivering solutions for environmental monitoring and “smart cities.”
- Deployed scalable systems using sensors, edge computing, and cloud analytics.

Software Engineer

NOOR Data Networks — Cairo, Egypt

Jun 2014 – Apr 2015

- Improved workflow efficiency through internal tool creation and web development.

- Enabled real-time processing in distributed sensor networks via edge computing.

Systems Software Engineer

Ministry of Military Production (Egypt) — Cairo, Egypt

Jan 2013 – Apr 2014

- Developed secure communications and embedded control systems for military facilities.
- Led technical coordination with government clients, translating needs into engineering outcomes.

Performance & Instructional Leadership

Owner & Maker

Sky Junk — Brooklyn, NY

2023 – Present

- Design and hand-sew custom bags, pouches, and gear for skydivers, outdoor adventurers, and tactical users — built for durability, function, and fit.
- Work from a home workshop using industrial sewing machines and heavy-duty materials; each piece is made to order, based on real-world needs.
- Started by making gear for skydivers — now serves a broader community of users who rely on equipment in extreme environments.

Founder & Director

Parkour Egypt — Cairo, Egypt

2008 – 2025

- Founded Egypt's largest parkour organization: 500+ members, 11 branches, 100k+ participants since inception.
- Built a coaching team and expanded services: stunt coordination, athletic casting, gym ops, TOT certification.
- Promoted safe access, creative problem-solving, and physical literacy through movement and making.
- Spun out Rigging Arts in 2025 to focus on theatrical and performance rigging for the MEA region.

Founder & Director

Rigging Arts — Cairo, Egypt & New York

2025 – Present

- Provide specialized rigging services for theater, film, and immersive productions across the MEA region.
- Deliver technical rigging solutions, safety inspections, and equipment rental.
- IRATA Rope Access Certified (Level 3) — apply industrial safety standards to artistic environments.

Head Coach (Parkour) / STEM Instructor

GrassRoots Fitness Project — New York, NY

May 2018 – Nov 2018

- Reconstructed and led parkour program as Head Coach for beginner to advanced levels.
- Directed summer camp merging parkour training with hands-on STEM: electronics, robotics, physics.
- Combined physical literacy with technical problem-solving — model for experiential learning.

Skydiving Coach (Part-Time)

Skydive The Ranch — Gardiner, NY

Jul 2025 – Present

- Instruct newly licensed skydivers and AFF students in freefall, canopy control, emergencies, and landings.
- Conduct pre-jump briefings, equipment checks, and debriefs to reinforce situational awareness.
- Train solo flight readiness, decision-making under pressure, and FAA/USPA compliance.

Stunt Performer & Assistant Stunt Coordinator

Andrew McKenzie Stunt Team — Egypt

2009 – 2015

- Performed stunts in film and TV: falls, vehicle impacts, choreographed sequences.
- Assisted in scene execution, focusing on performer safety and continuity.

Select Interactive Art Projects

InterLAB: Artificial Emotional Intelligence

Medrar for Contemporary Art — Cairo, Egypt

2013

- Collaborated on a transnational new media exhibition connecting visitors in Cairo and Dresden.
- Contributed embedded programming and networked systems enabling emotion-driven visuals.

Wonderbox

Mahatat for Contemporary Art — Cairo, Egypt

2014

- Revitalized Egyptian “Sandoo’ Eddonia” (Box of the World) as a traveling interactive art piece.
- Used Arduino, LED lighting, and projection mapping; provided technical direction and storytelling fusion.

Pulse & Bloom

NextNow Festival, The Clarice — University of Maryland, US

2017

- Rebuilt and restored Burning Man-originated biofeedback art installation after 4 years of global travel.
- Ensured functional and aesthetic integrity for its U.S. institutional debut.

Tidal

Three Rivers Arts Festival — Pittsburgh, PA, US

2017

- Planned, fabricated, and installed site-specific interactive artwork from concept to public exhibition.

Community Leadership & Makerspace Development

Active Member

Hack Manhattan — New York, NY

2019 – Present

- Contribute to NYC hackerspace focused on hardware hacking, open-source collaboration, and creative tech.
- Engage in peer-led workshops on embedded systems, digital fabrication, and interactive art.

Founding Director

Cairo Hackerspace — Cairo, Egypt

Aug 2010 – 2021

- Co-founded Egypt’s first hackerspace — hub for makers, technologists, and artists.
- Designed interdisciplinary workshops in electronics, coding, and digital fabrication.
- Build partnerships with global organizations to deliver skills-based training in creative technology.

Co-Founder & Director

Fab Lab Egypt (MIT Fab Lab Network) — Cairo, Egypt

Oct 2011 – Dec 2012

- Established one of the first MIT-affiliated Fab Labs in the Middle East.
- Built digital fabrication infrastructure and open-access programs for students and artists.
- Promoted “learning by doing” and collaborative making.

Project Lead — Maker Express

Funded by Hivos — Egypt

Oct 2016 – Jan 2017

- Co-designed mobile makerspace in retrofitted microbus; toured 30+ cities in Upper Egypt.
- Delivered hands-on workshops in IoT, robotics, 3D printing, and photography to underserved youth.

Project Lead — Back-end Web Dev Boot Camp

S3GEEKS + Hivos — Egypt

Jan 2018 – Jan 2019

- Co-managed 12-month boot camp targeting youth in Upper Egypt — limited local tech access.
- All 40+ graduates secured web development roles in tech companies within months.

Project Lead — Mobile Development Code Camp

X-Team — Egypt

Jul 2019 – Nov 2019

- Organized Android dev boot camp for early-career developers with industry mentorship.
- Participants built portfolio apps and transitioned into professional mobile development roles.

Active Member

Global Innovation Gathering (GIG)

2012 – Present

- Participate in a global network of grassroots innovation spaces, makers, and changemakers.
- Exchange knowledge on inclusive, community-driven technology and art practices.

Education

M.S. Electrical Engineering – Ongoing

University of Colorado Boulder | Part-Time Online Program

B.S. Computer Science

Ahram Canadian University, Cairo, Egypt — 2011

Diploma in Military Engineering & Company Commander Training

Military Engineers Institute — Cairo, Egypt

Oct 2011 – Apr 2014

- Completed officer training in leadership, logistics, and operational planning.
- Served as Company Commander leading a unit of 90 soldiers and 5 officers in field missions.

Diploma in Military Sciences

Military Reserve Officers College — Ismailia, Egypt

2012

- Part of integrated military education pathway; focused on strategic thinking and organizational leadership.

Technical Skills

- **Immersive Tech:** Processing, Arduino IDE, OSC, Philips Hue, Show Control, Unity
- **Programming:** Python, C/C++, JavaScript, PHP, Bash, Assembly
- **Embedded Systems:** Raspberry Pi, Arduino, Teensy, ESP32, STM32, RTOS
- **AV & Lighting:** Philips Hue, projectors, media servers, sound reinforcement
- **Networking:** TCP/IP, VLANs, WiFi, Zigbee, LoRa, RF, Linux networking, IT infrastructure
- **Fabrication:** Woodworking, 3D printing (FDM), CNC, laser cutting, PCB assembly, industrial sewing
- **Operating Systems:** Linux (CLI), macOS (GUI/CLI), Windows, Embedded Linux, Yocto
- **Electrical:** Low-voltage electronics, power distribution, relays, circuit design
- **Rigging:** Theater/stunt rigging, trussing, fall protection, chain motors, load testing
- **Physical Safety:** Equipment inspection, structural assessment, confined space work, elevated access
- **Project Management:** Jira, Agile, budget tracking, vendor coordination
- **Teaching & Communication:** Adult & child instruction, curriculum design, technical mentoring, cross-age communication, parkour coaching, STEM integration, translating technical concepts for non-technical audiences

Selected Publication

"Design and Implementation of a WiFi Based Home Automation System," World Academy of Science, Engineering and Technology, pp. 2177–2180, 2012.