

# DOBROMIR TODOROV (DOBRY)

## Principal Graphics & AI Engineer | Co-founder (CTO)

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## SUMMARY

Principal engineer and technical co-founder with 16+ years building real-time computer vision, AI, and 3D graphics systems - from research to production. Specializes in low-latency inference and streaming pipelines at hardware limits, backed by 7 patents and 2 peer-reviewed publications. Delivered production systems for global OEMs including MSI, Lenovo, and Acer.

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## EXPERIENCE

### RED PILL LAB LTD — CTO & Co-founder

Taipei, Taiwan | 2017-Present

- Technical lead of a 5–10 person engineering team across all product lines.
  - Architected **NeoCore**, a multi-actor markerless motion capture system:
    - 1-6 actors; up to 10 synchronized 1080p@60 FPS cameras; <200 ms latency (RTX 3090 Ti)
    - Sub-centimeter accuracy; built multi-camera pipeline, hybrid IK solver, and GPU-optimized inference (60 FPS)
  - Led development of **MSI DigiME** avatar platform (desktop):
    - Real-time animation/rendering pipeline with virtual camera integration (Zoom, OBS, Teams)
    - Integrated LLM, speech-to-text, and text-to-speech APIs
    - Scaled to ~18,000 users (~1,000+ new users/month)
  - Directed development of standalone AI mocap device (**Jetson TX2**):
    - ~40 FPS real-time tracking within 12V/2A power budget
    - 200+ units manufactured and shipped globally
  - Engineered **VoiceEngine**, a lightweight CNN-based voice-to-facial animation system:
    - ~2 MFLOPs/sec (CPU), 100 Hz inference
    - Awarded **Epic Games MegaGrants**
  - Developing a real-time humanoid teleoperation pipeline integrated with NVIDIA Isaac Lab, with ongoing work on **sim-to-real** transfer to physical robotic systems
  - Architected OEM solutions:
    - **Lenovo**: Rockchip-based edge AI motion capture system
    - **Acer**: OpenXR hand tracking for stereoscopic displays
  - Designed cross-platform mocap ecosystem (Windows, Android, Web) with real-time streaming
  - Built AWS serverless backend (Lambda, Amplify, Node.js) for authentication, asset delivery, and real-time synchronization
  - Co-founded company and led technical strategy, securing \$1.1M+ in funding and acceptance into NVIDIA Inception
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### NEXT MEDIA ANIMATION LTD — Senior Computer Graphics Engineer

Taipei, Taiwan | 2014-2017

- Supported the real-time animation pipeline enabling 3D news production within a 2-hour turnaround
  - Developed Kinect-based multi-actor tracking system with enhanced skeletal reconstruction
  - Built markerless facial capture system (60 FPS) with real-time Maya integration
  - Developed ArUco-based virtual camera tracking system used in film previsualization (*Shin Godzilla*)
  - Implemented real-time chroma keying engine (<16 ms latency, multi-input HDMI/USB)
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## SKILLS

- **Programming Languages:** C/C++, C#, Python, JavaScript, TypeScript, Java
  - **Graphics/Engines:** Unreal Engine, Unity, Godot, OpenGL, Direct3D, Vulkan
  - **AI/ML:** TensorRT, ONNX, PyTorch, OpenCV, IK Solvers
  - **Systems:** CUDA, Multi-threading, WebRTC, RTSP, Distributed Systems
  - **Cloud:** AWS (Lambda, Amplify, S3, Node.js)
  - **Languages:** English (Fluent), Mandarin Chinese (Conversational), Bulgarian (Native)
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## HONORS

- Epic Games MegaGrants Recipient (VoiceEngine)
  - NVIDIA Inception Program Member
  - Arm Ambassador (2025)
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## EDUCATION

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- **M.S. Computer Science** — National Taiwan University of Science and Technology, 2013  
*Thesis: "3D Photorealistic Real-time View Synthesis for a Bike Simulator"*
  - **B.S. Computer Systems** — Technical University of Varna, 2009
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## PATENTS

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- **Method and system for generating a three-dimensional global pose from an image** 2023 US20240303917A1
  - **Method of Motion Capture** 2019 US20200218365A1
  - **Method for Transforming Voice into a Virtual Facial Representation** 2019 TWI712032B
  - **Method for tracking object in video signal which shows improved robustness against variation of background of an object to be tracked** 2016 TW201734951A
  - **Method and system for real time tracking of camera movement based on graphic recognition which generate a 3D animation image according to a movement information** 2016 TW201738848A
  - **Recognition method of human body posture in real time which is implemented by an identification system comprising an image capturing unit and a processing unit** 2016 TW201738827A
  - **Computer cabinet with consideration of heat dissipation** 2016 TWM527708U
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## PUBLICATIONS

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- **EZCam: WYSIWYG Camera Manipulator for Path Design** August 2017 IEEE Transactions on Circuits and Systems for Video Technology, Volume 27, Issue 8
- **Extra detail addition based on existing texture for animated news production** December 2016 Multimedia Tools and Applications, Volume 75, Issue 24