MATEUSZ BYKOWSKI

CG Supervisor · Realistic CGI & Generative AI · Synthetic Data for Computer Vision · Industrial CG

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PROFILE

CG Supervisor with 10+ years in 3D production and an MFA in fine arts. I make realistic CGI: hard-surface assets, environments, digital humans and the look that holds them together. For the last three years I've also brought generative AI into production, with artists in control of the result. At Sky Engine AI that CGI trains computer vision models, so my daily work is shared with data scientists, ML specialists and rendering developers: I turn their requirements into asset and scene specs, and deliver output that is checked frame by frame against ground truth, not judged by eye. I lead teams of up to 19 artists across nine disciplines and stay hands-on in Blender and Substance.

EXPERIENCE

CG Supervisor — Sky Engine AI

2023 – Present | Warsaw | Remote

- **Supervision across the CG pipeline.** One of two CG Supervisors reporting to the Head of CG. Asset supervision on every project; full supervision on some (assets, layout, shots, simulation, shading, compositing), specific asset groups on others (heads, hair, props, vehicles). 7 commercial and 3 R&D projects delivered on schedule, many of them extended.
- **Realistic assets at scale.** Hundreds of hard-surface assets (vehicles, furniture, props, full buildings, a manufacturing area with robotic arms), mostly on procedural shaders with exposed parameters and variants. Topology, UVs and optimisation built to the rules of a proprietary engine, so one asset could feed thousands of variations.
- **Look development.** Set references, lighting, camera and material targets before production, including for proofs of concept. Built two full skin shader systems in Substance Designer; lit and composed marketing key shots.
- **Digital humans, re-engineered.** Replaced hand sculpting with an AI-assisted head pipeline I co-designed and supervised: 2D prep, 3D generation, then procedural topology fixes in Houdini. It produced about 60% of 420+ heads and cut time per head by about 80%. AI never reached the final image.
- **Generative AI with artists in control.** Led R&D and validation of ComfyUI workflows (texture generation, denoising) and rolled them out for repetitive texture and geometry stages. Reviewed AI output for hallucinated detail, anatomy errors, colour shifts and inconsistent quality before anything reached a dataset.
- **Specs, feedback and tooling.** Defined asset specs, naming, review and publishing rules. Feedback based on the root cause of an error and a tested fix, so recurring issues were solved once, team-wide. Regular workflow audits; commissioned automation for texture and geometry stages. One year of hiring and onboarding.
- **Ground truth as the quality bar.** Every asset passed validation against pixel-perfect semantic masks, keypoints and accurate scale. Output was analysed frame by frame, so a flaw film or games would hide counted as a defect in the dataset.
- **Working with data science and ML.** Translated client and data science requirements into asset and scene specs for artists and QC. Built diverse human data (adults and children across ethnicities, sexes and developmental stages), with anatomy checked against scientific publications to reduce bias in facial recognition models.
- **Working with rendering developers.** Matched output to client sensor specs, from high-end telemetric cameras to low-quality CCTV, inside the in-house rendering engine.
- **Environments from real data.** Forest and farmland terrain for UAV clients built from GIS data, set-dressed for low-altitude drone cameras with scatter-ready LODs, in a small R&D team working directly with data science.
- **Scoping and estimates.** Daily man-day estimates, proof-of-concept scoping with the Head of CG and production.

3D Animator — Sky Engine AI

2022 – 2023 | Warsaw | Remote

- **Driver and occupant monitoring.** Character and vehicle animation for automotive safety scenarios (Euro NCAP) and animal animation for AI monitoring systems.
- **Ground truth in motion.** Keypoints, UV-based semantic segmentation and eye gaze vectors embedded in the output, where accuracy had to be absolute. Defined rigging and asset requirements for the animation team.
- **Stepped up.** When the CG Lead left mid-project, I took over as supervisor and coordinator. We delivered on time, the project was extended, and I was promoted to CG Supervisor.

Freelance CGI Visualisation — offshore marine services client

2025 | Remote (alongside Sky Engine AI)

- **End to end, owned alone.** Three-week project visualising the conversion of a jack-up rig: visual direction, storyboard, 6 stills, 3 technical visualisations, a key visual, roll-up and investor deck.

Digital Technologies Specialist — NED-Project

2014 – 2022 | Gdańsk

- **Reality capture.** ~35 tanker and container vessel projects built from laser scan and point cloud data, integrated with BIM geometry, for engineering clients with zero tolerance for inaccuracy.
- **Digital twins.** Led a 2-person R&D team delivering 6 VR digital twin projects in Unity, from raw geometry through optimisation, materials and real-time lighting.
- **Visualisation.** Eight years of 3D visualisations, animations and technical 2D graphics for naval engineering.

Content Creator — Wayman

2012 – 2014 | Gdańsk (freelance)

- Product visuals, user manuals, training videos and a hand-drawn animated ad for an ERP software company.

Graphic Designer & Asset Creator — Trinity Studio

2012 – 2013 | Gdańsk

- 2D game art for Violet Fall, a browser RPG published with Wirtualna Polska: sprites, environment tiles and UI.

EDUCATION

Master of Fine Arts — Fine Arts Academy in Gdańsk

2007 – 2012 | Gdańsk, Poland

SKILLS

CGI & Generative AI

- Realistic hard-surface assets, environments and digital humans; procedural, parametric shaders
- Look development, lighting, camera, key shots, render QA
- Generative AI in production: ComfyUI workflows (R&D, validation, rollout), QA of AI output

Synthetic Data

- Ground truth: semantic masks, keypoints, gaze vectors, frame-by-frame validation
- Variation at scale, bias-aware human data, environments from GIS data, sensor-matched rendering
- Requirements from data science, ML and rendering teams turned into asset and scene specs

Leadership & Production

- Teams up to 19 artists across nine disciplines; review and final approval
- PoC scoping, man-day estimates; Jira, Flow Production Tracking / ShotGrid, Confluence

Software

- Blender (proficient) · Substance Designer, Substance Painter · ComfyUI
- Houdini (basic) · Unity (basic) · Maya (basic, animation)
- AI-assisted Python scripts for batch 3D and file tasks
- Photoshop, After Effects, DaVinci Resolve

LANGUAGES

English — Advanced (C1) · Polish — Native