

Yan Tang, PhD

Researcher in Neuroscience · NeuroAI / Neural-Data Engineer

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PROFILE

Neuroscientist-engineer bridging in-vivo neural data and machine learning. 15+ years in advanced in-vivo electrophysiology, multi-site fibre photometry, opto/chemogenetics and closed-loop neuromodulation, together with the full acquisition-to-analysis pipelines behind them. First / co-first author in *Nature Neuroscience* and *Nature Communications*; contributor to *Nature Biotechnology*. Hands-on Python / MATLAB with working knowledge of applied ML and LLM / agentic tooling. Based in Lausanne, immediately available.

CORE SKILLS

Neural data: multichannel electrophysiology, EEG/EMG, multi-site fibre photometry, spike sorting, time-series signal processing

ML / AI: applied ML for biomedical signals; LLM & agentic tooling for analysis and pipeline automation

Closed-loop / neuromodulation: TTL-triggered opto/sensory stimulation aligned to real-time neural readout; deep brain stimulation

Engineering: Python, MATLAB, Git/GitHub; instrumentation, 3D-printed hardware; OpenEphys

EXPERIENCE

Research Scientist (Chargé de recherche), Centre de Neurosciences Psychiatriques – CHUV / UNIL 2024–present

- Lead in-vivo / neural-data scientist on SNSF-funded translational projects integrating electrophysiology, imaging and behaviour; mentoring junior staff on pipelines.
- Directing an oxytocin / lactation project; co-directing Ambizione work on loneliness and oxytocin in Alzheimer's, and a deep brain stimulation project for OCD.
- Building reproducible analysis infrastructure and exploring AI / agentic tooling for high-throughput multimodal data.

Senior Postdoctoral Researcher, University of Lausanne (Prof. R. Stoop) 2020–2024

- Built a multi-site, dual-colour fibre-photometry acquisition system and the full downstream pipeline (synchronisation, signal extraction, artefact rejection, quantitative time-series analysis in MATLAB / Python).
- Established chronic in-vivo recording in lactating rats; characterised oxytocin burst dynamics from large multimodal datasets (electrophysiology + imaging + behaviour video).
- Designed closed-loop, TTL-triggered stimulation; demonstrated central-amygdala plasticity underlying social buffering of fear.

Postdoctoral Researcher, German Cancer Research Center (DKFZ), Heidelberg (Prof. V. Grinevich) 2016–2019

- Validated genetically-encoded GRAB / GPCR biosensors for in-vivo neuropeptide readout (contributor, *Nature Biotechnology* 2023) — multimodal sensor-data integration and benchmarking.
- Identified parvocellular oxytocin neurons orchestrating magnocellular activity; built automated EEG/EMG sleep-stage scoring and behavioural video-tracking analytics.

Doctoral Researcher, ECNU (Shanghai) & Heidelberg University (Prof. L. Lin) 2010–2016

- In-vivo multichannel recording in freely-moving rodents; built custom automated food-delivery / event-logging hardware and spike-sorting / time-series pipelines (OpenEphys, MATLAB).

GRANTS & FUNDING (SELECTED)

- **SNSF Ambizione** — Co-PI (Dr. S. Tsartsalis) | 960,562 CHF | 2024–2028. CNS innate immunity: how social support and oxytocin protect against Alzheimer's disease.
- **SNSF** — Co-PI (Prof. R. Stoop, Prof. C. Li) | 348,964 CHF | 2022–2026. Role of the BLA–PFC axis in social cognition.
- **SNSF–DFG** — Co-PI (Prof. R. Stoop, Prof. V. Grinevich) | 383,456 CHF | 2018–2021. Oxytocin neural population coordinating lactation.
- **DFG–ANR** — Co-PI (Prof. V. Grinevich, Prof. A. Charlet) | 750,000 EUR | 2016–2021. Oxytocin circuits orchestrating socio-sexual behaviour.

SELECTED PUBLICATIONS

1. Tang Y, Benusiglio D, Lefevre A, et al. Social touch promotes interfemale communication via activation of parvocellular oxytocin neurons. *Nature Neuroscience* 23, 1125–1137 (2020). (first)

2. Hegoburu C, Tang Y, Niu R, et al. Social buffering extinguishes fear by oxytocin triggering sustained changes in central amygdala neuronal activity. *Nature Communications* 15, 2081 (2024). (*co-first*)
3. Qian T, Wang H, ..., Tang Y, et al. A genetically encoded sensor measures temporal oxytocin release from different neuronal compartments. *Nature Biotechnology* 41, 944–957 (2023).
4. Tang Y, Benusiglio D, Lefevre A, et al. Viral tools for optogenetics, opto-tagging and photometry imaging of oxytocin neurons in the rat hypothalamus. *STAR Protocols* (2022). (*first*)
5. Eliava M, Melchior M, ..., Tang Y, et al. A new population of parvocellular oxytocin neurons controlling magnocellular neuron activity and inflammatory pain processing. *Neuron* 89, 1291–1304 (2016).

13 peer-reviewed publications | 1,051 citations, h-index 8, i10-index 8 | Reviewer / co-reviewer for eLife, Neuron, Nature Communications, J. Neuroscience.

TEACHING & LEADERSHIP

- Course Instructor, CHUV in-vivo pre-master course (2021–2024): electrophysiology, optogenetics, miniscope, behaviour and data analysis.
- Supervised 5+ PhD students and postdocs (2015–present), several now in successful independent research careers.

INDUSTRY & OPEN-SOURCE

- Industry co-development with Doric Lenses, NeuroNexus and RWD on fibre-photometry / optogenetic systems.
- OpenEphys beta-tester; contributed to miniendoscope development; custom microdrives & implants (Formlabs 3D printing); GitHub photometry and spike-sorting code.
- Earlier: Market & Product Specialist, MKBIO, Shanghai (2007–2009).

TRAINING, LANGUAGES & WORK AUTHORIZATION

- **Certifications:** FELASA cat. B; RESAL Module 1 (laboratory animal science); German language training (CSC).
- **Languages:** Chinese (native), English (fluent, C1), German (intermediate, B1), French (basic, A2).
- **Authorization:** Swiss B work permit (valid to 08/2027) — eligible to work in Switzerland, no visa / relocation needed. Open to remote / hybrid; part-time (50–80%) or full-time. Available from July 2026.