# Dr. Ing. Nicolo' Brandizzi

Al Researcher Research Scientist @ Fraunhofer IAIS



#### **CONTACTS**

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- nicofirst1
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#### **EXPERIENCE**

## **Programming**

Python 11 year(s)	•••••
LaTeX 9 year(s)	•••••
HPC 6 year(s)	••••
Bash 9 year(s)	••••
HTML/CSS 3 year(s)	••••

#### **Artificial Intelligence**

Deep Learning/ ML 9 year(s)	••••
Reinforcement Learning 7 year(s)	••••
NLP / LLMs 7 year(s)	••••
Data Engineer 2 year(s)	••••
Al Governance 1 year(s)	••••

#### Languages

Italian	Native		
English	C1		
German	B1		
Spanish	A2		

## **INTERESTS**



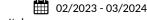
# WORK EXPERIENCE

**♀** Fraunhofer IAIS, St. Augustin, Germany

- Engineered HPC-scale data pipelines for LLM training, processing 703 TB of multilingual text across 24 languages, and developed methods for dataset quality assurance, filtering, and reproducibility to improve reliability in the OpenGPT-X and EuroLingua projects.
- Coordinated AI data governance and GDPR-compliant practices for the TrustLLM and OpenFLaaS projects.
- Leading in DKZ.2R (Data Reproducibility), organizing hackathons and providing consultancy on reproducible AI pipelines.
- Building and evaluating agentic prototypes for federated and collaborative data workflows.
- Leading in the JUPITER AI Factory (€ 25M EuroHPC project) and in Archer, designing and coordinating evaluation campaigns for foundation models.
- Co-leading the Data Team (as of 05/2025) and acting as Fraunhofer referent for the Lamarr Institute.

Research Collaborator 0

Sapienza University of Rome, Italy



- Conducted research on human-AI interaction leveraging hierarchical, model-based reinforcement learning augmented by communication models in the Trust Your Agent Project.
- Contributed to developing computational frameworks enhancing trust and cooperation between humans and AI agents.
- Co-authored publications and presented findings at international workshops, increasing visibility of the project outcomes.

Research Scientist # 10/2022 - 04/2023

- Pasis Health, Middletown, USA (Remote)
- Analyzed academic literature on wearable health technologies, directly informing industry innovation strategies.
- Collaborated with interdisciplinary teams to implement new methods for health data analysis, aiming at personalized health improvement.
- Developed reports translating research insights into actionable recommendations, facilitating practical application of theoretical results.

- Sapienza University of Rome, Italy
- Held teaching assistant positions for Tecniche di Programmazione and Seminars in Artificial Intelligence.
- Supported student learning through tutorial sessions, guided practical assignments, and assisted course professors in teaching material development.

Research Collaborator							
<b>EDUCATION</b>							
Ph.D. Engineering in Computer Science							
Ph.D. Engineering in Computer Science							
ing", under supervision of Prof. Luca locchi and Prof. Roberto Navigli.  • Research Visit at UBT: I completed a 10 months (04/2023 - 02/2024) research visit at the University of Bayreuth under the supervision							
of Prof. Daniel Buschek.							
<ul> <li>Research Visit at UvA: I completed a 5 months (03/2022 - 08/2022) scientific visiting period at Amsterdam university under the super vision of Prof. Raquel Fernández.</li> </ul>							
• Thesis Supervision: I have provided supervision for several Master's students in their thesis writing.							
Research Group: I was part of the Ro.Co.Co. lab at DIAG ( Dipartimento di Ingegneria informatica, automatica e gestionale).							
M.Sc. of Engineering in Artificial Intelligence and Robotics							
o <b>Grade</b> : 110 with honors /110 (GPA 4/4).							
<ul> <li>M.Sc. Thesis: "Reinforcement Lupus: Cooperation through emergent communication in The Werewolf social deduction game", unde supervision of Prof. Luca locchi.</li> </ul>							
<ul> <li>Erasmus Program: I completed a 10 months (10/2019 - 08/2020) Erasmus program in the University of Groningen, Netherlands, unde the supervision of Prof. Davide Grossi.</li> </ul>							
B.Sc. of Computer and Autonomous System Engineering							
o Grade: 101/110 (GPA 2.97/4).							
<ul> <li>B.Sc. Thesis: "Comparison Between Segmentation Methods", under supervision of Prof. Fiora Pirri.</li> <li>Internship: I completed a 7 months internship (05/2017 - 01/2018) in the ALCOR Lab under the supervision of Dr. Luigi Freda working on the TRADR EU project.</li> </ul>							
CERTIFICATIONS, GRANTS AND AWARDS							
Grants & Fellowships							
> EuroHPC Joint Undertaking (EUROHPC-2024-CEI-AI-01): "JUPITER AI Factory NRW"							
## 2025							
> Air Force Office of Scientific Research (FA8655-23-1-7257): "Trust your agents: Mixed human-machine cooperation based on model based, hierarchical, and communication-augmented Reinforcement Learning"							
## 2023 - 2025							
> RWTH Aachen University: ""Future of AI" Summit (expert forum uniting academia and industry)"							
fill 09/2023 A Participant % [Link]							
> TAILOR Network: "Connectivity Fund (CL.AIRE Rising Research Network on AI and Mental Well-being)"							
∰ 07/2023							
> University of Amsterdam: "Research Engineering Support Grant (via the UvA Data Science Center)"							
> COST Action EU: "Multi3Generation Training School (COST Action CA18231)"							
## 09/2022							
> Sapienza University of Rome: "Multi-agent Model Based Reinforcement Learning,"							
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> Sapienza University of Rome: "Research scholarship (Avvio di ricerca)"							
## 2021 - 2022							

#### **Awards**

- 2021 Spotlight paper in Adaptive and Learning Agents Workshop [ALA21] at AAMAS.
- ₹ 2020 First classified for Ph.D. scholarship at Sapienza University of Rome, Italy.

## **Certifications and Trainings**

🛗 03/2025 (16H) 🏶 Fraunhofer: "Project Managment"

🛗 02/2025 (7.5H) **# Fraunhofer**: "Leadership"

🛗 08/2024 - 11/2024 🏶 BlueDot Impact - AI Safety Fundamentals: "AI Governance" 🔸

# **CONFERENCES, SUMMER SCHOOLS & WORKSHOPS**

#### Organizer

07/2024 Organizer at Al-Mind Workshop 2.0: R2Net Al Research & Mental Well-Being Workshop at ESSAI2024 %

04/2024 Lead Guest Editor at MultiTTrust Special Issue: at Journal of Interaction Studies %

12/2023 Organizer at MultiTTrust Workshop: Multidisciplinary Perspectives on Human-Al Team Trust %

07/2023 Organizer at Al-Mind Workshop: R2Net Al Research & Mental Well-Being Workshop at ESSAI2023 %

12/2022 Organizer at Weights and Biases Workshop: Workshop at Sapienza University

09/2022 Local Chair at Al4UAM PhD School: Artificial Intelligence for Urban Air Mobility %

#### **Invited Talks**

03/2025 Speaker at European Broadcasting Union: Data Technology Seminar %

07/2024 Speaker at Al-Mind Workshop 2.0: Advancing Generative and Trustworthy Al: Key Projects at Fraunhofer IAIS.

07/2024 Speaker at Solarpunk Conference: Federated Approaches to Data Challenges in Ethical AI %

06/2024 Presenter at 4th TAILOR Conference: Trustworthy AI from lab to market %

11/2023 Speaker at Fraunhofer IAIS: Minds and Machines: Towards Aligned Human-Al Interaction

10/2023 Speaker at CLAIRE Rome Office Launch: Safeguarding the Future: Higher Level AI Education %

05/2022 Speaker at Alhub: New voices in Al %

05/2022 Speaker at Lightning Talks: CLAIRE Rising Researchers Network %

01/2021 Speaker at Sapienza University of Rome: Machine Learning Seminars %

#### **Attendee**

07/2023 Attendee at **Summer School:** European Summer School on Artificial Intelligence %

09/2022 Attendee at **Training School:** Representation mediated Multimodality %

01/2022 Attendee at Winter School: DeepHealth Winter School %

#### **Others**

06/2023 Student Volunteer at **HHAI2023**: Conference on Hybrid Human-Artificial Intelligence %

11/2021 Mentee at Virgilio Project: Mentoring for Young Entrepreneurs and Start-ups %

# PROFESSIONAL EXPERIENCES

Lead Developer

11/2021 - 03/2025

**♀** Bayreuth University, Germany

Led programming and software development for CorpusCompass as part of the DFG-funded project "Modernity, Migration and Minorities".

- o Secured the UvA Research Software Engineering Grant (2023).
- Published and presented two peer-reviewed articles at Clic-IT 2023 and Field Matters 2024, ACL
- o Supervised two master's students, resulting in successful project completion and their subsequent appointments as student assistants.

PhD student represe	ntative 🇯 11/2	2021 - 10/2023 <b>♀</b> Sapi	enza University, Rome, Ita	ly	
Advocated for PhD stude successfully to provide fr					ces. Negotiated
Member of the Depa	rtment Council	06/2021 - 10/2023	<b>♀</b> DIAG, Sapienza Un	versity, Rome, Italy	
Played a key role in shap growth.	ng department policies	, collaborating with cour	icil members and facult	/ to support departmen	ital success and
Project Developer	07/2021 - 07/202	22 <b>9</b> Rotaract Club, Ro	ome. Italy		
Coordinated the Save You and outreach.	ır Life project to raise bı		•	e website and organizin	g public events
< COMMUNITY	NGAGEMENT				
MultiTTrust Steering	Committee ##	11/2024 - Present <b>Q</b>	Online		
Member of the Steering Trust). Contributing to the and research on the commissions, and promoting collaboration.	ne strategic direction an plex dynamics of trust i	nd organization of this win human-Al teams. Resp	orkshop series, which a ponsibilities include sha	ims to foster interdiscip ping workshop themes,	olinary dialogue reviewing sub-
Z-Inspection® Affiliat	e 🛗 11/2024 - Pr	resent <b>Q</b> Online			
Joining the Z-Inspection® frameworks and collabor societal values.	initiative, focused on ev	valuating trustworthy Al.			
CAIRNE SIG on Ethic	al, Legal, and Social	Aspects of Al Memb	er 🏥 10/2024 -	Present <b>Q</b> Online	
<ul> <li>Member of the CAIRNE S</li> <li>Ethical Discussions an reflecting on societal in</li> <li>Workshops and Semir</li> <li>Collaboration on Ethic ensuring adherence to</li> </ul>	d Dilemma Reflection: mpacts of AI technologic lars: Participating in and al AI: Collaborating with	Contributing to discussions.  I contributing to workshops	ons on ethical dilemma	as in Al, such as bias an actices and legal compli	iance.
CAIRNE   R2net Kerne		01/2022 - Present <b>9</b> (	Online		

After joining the CAIRNE Rising Researcher Network in January 2022, by the end of the same year I was promoted to kernel member, serving as the first line of contact between CAIRNE and R2Net members. Managed a network of 300 students. Involved in:

- o Annual Paper Award: Organized and promoted a yearly award to showcase outstanding papers by network members on CAIRNE's
- o Resource Coordination: Managed R2Net's calendar of events, open calls, grants, and handbook.
- o Workshops and Events: Coordinated AI research and mental well-being workshops, dissertation support groups, and joint events with ESSAI Summer School.
- o Community Engagement: Presented a talk on R2Net opportunities and benefits, and launched a private LinkedIn group for enhanced networking and knowledge exchange.

11/2021 - 01/2024 Volunteer at ADI Rome, Italy

Volunteered with ADI (Associazione dottorandi in Italia) to support fellow doctoral students across Italy, contributing to initiatives aimed at enhancing the doctoral candidate experience.

Rotaract Club volunteer 04/2018 - 01/2024 Rome, Italy

As an active member of the Rotaract Club RTMM, worked as an informatics consultant to design and implement technology solutions supporting club initiatives focused on community service and leadership development. I was also the President of the Internal Commission (06/2017 - 06/2018) where I was responsible for internal member coordination and the organization of social events.

#### Erasmus Student Network volunteer

03/2021 - 10/2022

Rome, Italy

Organized and coordinated tandem language exchange programs and multiple large-scale events, each attended by over 200 participants. Gained extensive experience in event management, cross-cultural communication, and serving as a primary contact for incoming Erasmus students.

# **☞ PEER REVIEWS**

- 2025 **Neurocomputing:** Elsevier Neurocomputing Journal
- 2024 **Springer Nature:** Autonomous Agents and Multi-Agent Systems
- 2024 IROS: IEEE/RSJ International Conference on Intelligent Robots and Systems
- 2023 **Journal:** Al Communications
- 2023 **EACL:** The 17th Conference of the European Chapter of the Association fo Computational Linguistics
- 2022 **CSAE:** The 6th International Conference on Computer Science and Application Engineering
- 2022 **Emergent Communication Workshop:** International Conference on Learning Representations [ICLR]

# **★** SUPERVISIONS

#### **Master Students**

- **♣ Jonas Adler** # 2024 **♥** Universität Bayreuth
- "User-Centered Design of Digital Tools for Sociolinguistic Studies in Under-Resourced Languages"
- 🖺 "User-Centered Design of Digital Tools for Sociolinguistic Studies in Under-Resourced Languages"
- 🖺 "Multi-agent model based reinforcement learning" (Thesis)
- ▲ Abdolhadi Rezaei ## 2022 Sapienza University of Rome
- 🖹 "Hand Gesture and Voice Recognition on RaspberryPi" (Thesis)
- ♣ Francesco Frattolillo 🛗 2021 🗣 Sapienza University of Rome
- 🖹 "Adaptive Playing and Opponent Modeling in Competitive Games" (Thesis)

# **PUBLICATIONS**

#### **Journal Articles**

- [1] **N. Brandizzi**, "Toward More Human-Like Al Communication: A Review of Emergent Communication Research". In: *IEEE Access* 11 (2023), pp. 142317–142340. DOI: 10.1109/ACCESS.2023.3339656.
- [2] S. Pepe, S. Tedeschi, N. Brandizzi, S. Russo, L. Iocchi, C. Napoli, "Human Attention Assessment Using A Machine Learning Approach with GAN-based Data Augmentation Technique Trained Using a Custom Dataset". In: OBM Neurobiology 06.03 (Sept. 2022), p. 139. ISSN: 2573-4407. DOI: 10.21926/obm.neurobiol.2203139. URL: https://doi.org/10.21926/obm.neurobiol.2203139.
- [3] N. Brandizzi, D. Grossi, L. locchi, "RLupus: Cooperation through emergent communication in The Werewolf social deduction game". In: Intelligenza Artificiale 15 (2021), pp. 55–70. ISSN: 2211-0097. DOI: 10.3233/IA-210081. URL: https://doi.org/10.3233/IA-210081.

#### **Conference Papers**

- [4] G. Contino, R. Cipollone, F. Frattolillo, A. Fanti, **N. Brandizzi**, L. Iocchi, "Modeling a Trust Factor in Composite Tasks for Multi-Agent Reinforcement Learning". In: *Proceedings of the 12th International Conference on Human-Agent Interaction*. HAI '24. Swansea, United Kingdom: Association for Computing Machinery, 2024, pp. 195–203. DOI: 10.1145/3687272.3688325. URL: https://doi.org/10.1145/3687272.3688325.
- [5] M. Adnan, **N. Brandizzi**, "CorpusCompass: A Tool for Data Extraction and Dataset Generation in Corpus Linguistics". In: *Proceedings of the 9th Italian Conference on Computational Linguistics*. Ed. by F. Boschetti, G. E. Lebani, B. Magnini, N. Novielli, vol. 3596. CEUR Workshop Proceedings. Venice, Italy: CEUR Workshop Proceedings, 2023, pp. 16–27. URL: http://ceur-ws.org/Vol-3596/.

- [6] **N. Brandizzi**, D. Brunori, F. Frattolillo, A. Trapasso, L. Iocchi, "Mixed Human-UAV Reinforcement Learning: Literature Review and Open Challenges". In: *Proceedings of the 1st International Conference on Cognitive Aircraft Systems (ICCAS 2022)*. INSTICC. SciTePress, 2023, pp. 38–42. ISBN: 978-989-758-657-6. DOI: 10.5220/0011955100003622.
- [7] N. Brandizzi, C. Centeio Jorge, R. Cipollone, F. Frattolillo, L. Iocchi, A.-S. Ulfert-Blank, "MULTITTRUST: 2nd Workshop on Multidisciplinary Perspectives on Human-Al Team Trust". In: *Proceedings of the 11th International Conference on Human-Agent Interaction*. HAI '23. Available online at https://multittrust.github.io/2ed/. Gothenburg, Sweden: Association for Computing Machinery, 2023, pp. 496–497. DOI: 10.1145/3623809.3623978. URL: https://doi.org/10.1145/3623809.3623978.
- [8] E. Takmaz, **N. Brandizzi**, M. Giulianelli, S. Pezzelle, R. Fernández, "Speaking the Language of Your Listener: Audience-Aware Adaptation via Plug-and-Play Theory of Mind". In: *Findings of the Association for Computational Linguistics: ACL 2023*, *Toronto, Canada, July 9-14, 2023*. Ed. by A. Rogers, J. L. Boyd-Graber, N. Okazaki, Association for Computational Linguistics, 2023, pp. 4198–4217. DOI: 10.18653/V1/2023.FINDINGS-ACL.258. URL: https://doi.org/10.18653/v1/2023.findings-acl.258.
- [9] N. Brandizzi, A. Fanti, R. Gallotta, S. Russo, L. Iocchi, D. Nardi, C. Napoli, "Unsupervised Pose Estimation by Means of an Innovative Vision Transformer". In: Artificial Intelligence and Soft Computing 21st International Conference, ICAISC 2022, Zakopane, Poland, June 19-23, 2022, Proceedings, Part II. Ed. by L. Rutkowski, R. Scherer, M. Korytkowski, W. Pedrycz, R. Tadeusiewicz, J. M. Zurada, vol. 13589. Lecture Notes in Computer Science. Springer, 2022, pp. 3-20. DOI: 10.1007/978-3-031-23480-4. URL: https://doi.org/10.1007/978-3-031-23480-4.

## **Workshop Papers**

- [10] J. Adler, C. Scholle, D. Buschek, N. Brandizzi, M. Adnan, "User-Centered Design of Digital Tools for Sociolinguistic Studies in Under-Resourced Languages". In: Proceedings of the 3rd Workshop on NLP Applications to Field Linguistics (Field Matters 2024). Ed. by O. Serikov, E. Voloshina, A. Postnikova, S. Muradoglu, E. Le Ferrand, E. Klyachko, E. Vylomova, T. Shavrina, F. Tyers, Bangkok, Thailand: Association for Computational Linguistics, Aug. 2024, pp. 12–27. URL: https://aclanthology.org/2024.fieldmatters-1.3.
- [11] N. Brandizzi, C. C. Jorge, F. Frattolillo, L. Iocchi, A. Ulfert-Blank, eds. Proceedings of the 2nd International Workshop on Multidisciplinary Perspectives on Human-Al Team Trust co-located with 11th International Conference on Human-Agent Interaction (HAI 2023), Gothenburg, Sweden, December 4-7, 2023. Vol. 3634. CEUR Workshop Proceedings. CEUR-WS.org, 2024. URL: https://ceur-ws.org/Vol-3634.
- [12] S. Di Rienzo, F. Frattolillo, R. Cipollone, A. Fanti, **N. Brandizzi**, L. Iocchi, "Developing Targeted Communication through a Trust Factor in Multi-Agent Reinforcement Learning". In: *Proceedings of HHAI 2024 Workshops*. Ed. by P. Ericson, N. Khairova, M. D. Vos, vol. 3825. CEUR Workshop Proceedings. Published under Creative Commons License Attribution 4.0 International (CC BY 4.0). Malmö, Sweden: CEUR-WS.org, June 2024, pp. 171–175. URL: http://ceur-ws.org/Vol-3825/.
- [13] F. Frattolillo, **N. Brandizzi**, R. Cipollone, L. Iocchi, "Towards Computational Models for Reinforcement Learning in Human-AI Teams". In: *Proceedings of the 2nd International Workshop on Multidisciplinary Perspectives on Human-AI Team Trust*. Vol. 3634. CEUR Workshop Proceedings. Gothenburg, Sweden, 2023, pp. 41–51. URL: https://ceur-ws.org/Vol-3634/.
- [14] **N. Brandizzi**, L. locchi, "Emergent communication in human-machine games". In: *Emergent Communication Workshop at ICLR* 2022. 2022. URL: https://openreview.net/forum?id=rqLgeQWCXZ9.
- [15] R. Aureli, **N. Brandizzi**, G. De Magistris, R. Brociek, "A Customized Approach to Anomalies Detection by using Autoencoders". In: Proceedings of the Scholar's Yearly Symposium of Technology, Engineering and Mathematics (SYSTEM 2021), Catania, Italy, July 27-29, 2021. Ed. by R. Fazzolari, A. A. Jaber, vol. 3092. CEUR Workshop Proceedings. CEUR-WS.org, 2021, pp. 53-59. URL: http://ceur-ws.org/Vol-3092/p09.pdf.
- [16] N. Brandizzi, V. Bianco, G. Castro, S. Russo, A. Wajda, "Automatic RGB Inference Based on Facial Emotion Recognition". In: Proceedings of the Scholar's Yearly Symposium of Technology, Engineering and Mathematics (SYSTEM 2021), Catania, Italy, July 27-29, 2021. Ed. by R. Fazzolari, A. A. Jaber, vol. 3092. CEUR Workshop Proceedings. CEUR-WS.org, 2021, pp. 66-74. URL: http://ceur-ws.org/Vol-3092/p11.pdf.
- [17] N. Brandizzi, A. Fanti, R. Gallotta, C. Napoli, "FEFFuL: a Few-Examples Fitness Function Learner". In: Proceedings of the Scholar's Yearly Symposium of Technology, Engineering and Mathematics (SYSTEM 2021), Catania, Italy, July 27-29, 2021. Ed. by R. Fazzolari, A. A. Jaber, vol. 3092. CEUR Workshop Proceedings. CEUR-WS.org, 2021, pp. 75-79. URL: http://ceur-ws.org/Vol-3092/p12.pdf.
- [18] **N. Brandizzi**, S. Russo, R. Brociek, A. Wajda, "First Studies to Apply the Theory of Mind Theory to Green and Smart Mobility by Using Gaussian Area Clustering". In: *Proceedings of the International Conference of Yearly Reports on Informatics, Mathematics and Engineering, Online, July 9, 2021. Ed. by R. Fazzolari, A. A. Jaber, vol. 3118. CEUR Workshop Proceedings. CEUR-WS.org, 2021, pp. 71–76. URL: http://ceur-ws.org/Vol-3118/p10.pdf.*

#### **Preprints**

- [19] M. Ali, M. Fromm, K. Thellmann, J. Ebert, A. A. Weber, R. Rutmann, C. Jain, M. Lübbering, D. Steinigen, J. Leveling, K. Klug, J. S. Buschhoff, L. Jurkschat, H. Abdelwahab, B. J. Stein, K.-H. Sylla, P. Denisov, N. Brandizzi, Q. Saleem, A. Bhowmick, L. Helmer, C. John, P. O. Suarez, M. Ostendorff, A. Jude, L. Manjunath, S. Weinbach, C. Penke, O. Filatov, S. Asaadi, F. Barth, R. Sifa, F. Küch, A. Herten, R. Jäkel, G. Rehm, S. Kesselheim, J. Köhler, N. Flores-Herr, Teuken-7B-Base & Teuken-7B-Instruct: Towards European LLMs. 2024. arXiv: 2410.03730 [cs.CL]. URL: https://arxiv.org/abs/2410.03730.
- [20] N. Brandizzi, "Extended Abstract: Conversational Agents in Human-Machine Interaction, Reinforcement Learning and Theory of Mind in Language Modeling". In: May 2024, p. 4. DOI: 10.13140/RG.2.2.29722.25287. URL: https://www.researchgate.net/publication/380396634\_Extended\_Abstract\_Conversational\_Agents\_in\_Human-Machine\_Interaction\_Reinforcement\_Learning\_and\_Theory\_of\_Mind\_in\_Language\_Modeling.

[21] N. Brandizzi, H. Abdelwahab, A. Bhowmick, L. Helmer, B. J. Stein, P. Denisov, Q. Saleem, M. Fromm, M. Ali, R. Rutmann, F. Naderi, M. S. Agy, A. Schwirjow, F. Küch, L. Hahn, M. Ostendorff, P. O. Suarez, G. Rehm, D. Wegener, N. Flores-Herr, J. Köhler, J. Leveling, *Data Processing for the OpenGPT-X Model Family*. Oct. 2024. arXiv: 2410.08800 [cs.CL]. URL: https://arxiv.org/abs/2410.08800.

# Other

[22] **N. Brandizzi**, "Conversational Agents in Human-Machine Interaction: Reinforcement Learning and Theory of Mind in Language Modeling". PhD thesis. 2024. URL: https://hdl.handle.net/11573/1709118.