

## Dr ANNA GUI (PhD)

Preferred pronouns: she/her

I am a developmental researcher interested in understanding why every child is so unique. I look at DNA and brain differences between children that can explain differences in their development. I aim to produce scientific discoveries that are useful when designing personalised support for families of children who face challenges in their developmental trajectory.

### **EMPLOYMENT**

2025-present **Assistant Professor** (researcher in tenure-track), Department of Systems Medicine, Università degli Studi di Roma Tor Vergata, Italy.

2023-2025 **Lecturer**, Department of Psychology, University of Essex, UK.

2019-2023 **Post-doctoral researcher**, Birkbeck, University of London, UK.

2015-2019 **Early-stage researcher** (Marie Skłodowska-Curie European Training Network PhD fellow), Birkbeck, University of London, UK

2008-2013 **Child therapist**

### **EDUCATION**

2015-2019 **PhD in Psychology**. Birkbeck, University of London, UK.

2013-2015 **MSc in Cognitive Neuroscience**. Università degli Studi di Trento, Italy.

2011-2013 **First level master's in Child Rehabilitation and Research Methodology**. Università degli Studi di Modena e Reggio-Emilia, Italy.

2005-2008 **BSc in Neurological and Psychomotor Approach Therapy**, Università degli Studi di Padova, Italy.

### **PUBLICATIONS**

Zhang X., Grove J., Gu Y., [...], **Gui A.** et al. (2025) *Polygenic and developmental profiles of autism differ by age at diagnosis*. *Nature*, 646, 1146–1155. <https://doi.org/10.1038/s41586-025-09542-6>

Ilyka D., Jiang Y., Begum-Ali J., Mason L., **Gui A.**, Gliga T., Lloyd-Fox S., Jones E., Charman T., Johnson M.H., BASIS/STAARS Study Team. (2025) *Mutual gaze and later social attention development in infants at typical and elevated familial likelihood for ASD and/or ADHD*. *Early Human Development*, 211:106398. <https://doi.org/10.1016/j.earlhumdev.2025.106398>

**Gui A.**, Hollowell A., Wigdor E.M., Morgan M.J., Hannigan L.J., Corfield E.C., Odintsova V. et al. (2025) *Genome-wide association meta-analysis of age at onset of walking*, *Nature Human Behavior*; 9, 1470–1487. <https://doi.org/10.1038/s41562-025-02145-1>

Throm, E.\*, **Gui, A.\***, Haartsen, R., da Costa, P. F., Leech, R., Mason, L., & Jones, E. J. (2025). *Combining real-time neuroimaging with machine learning to study attention to familiar faces during infancy: A proof of principle study*, *Developmental Science*; 28:1, e13592. <https://doi.org/10.1111/desc.13592>

**Gui, A.\***, Throm, E.\*, Haartsen, R., da Costa, P. F., Leech, R., Mason, L., & Jones, E. J. (2024). *Neuroadaptive Bayesian Optimisation to study individual differences in infants' engagement with social cues*, *Developmental Cognitive Neuroscience*, 68: 101401. <https://doi.org/10.1016/j.dcn.2024.101401>

Ronald A., **Gui A.** (2024) *The translational application of infant genetic research*, *Nature Genetics*. 56, 1346–1354. <https://doi.org/10.1038/s41588-024-01822-7>

Haartsen R., **Gui A.** and Jones E.J.H. (2024) *Neuroadaptive Bayesian Optimisation can allow integrative design spaces at the individual level in the social and behavioural sciences... and beyond*, Behav Brain Sci. 47:e45. <https://doi.org/10.1017/S0140525X23002388>

Throm E., **Gui A.**, Haartsen R., da Costa P.F., Leech R., Jones E.J.H. (2023) *Real-time monitoring of infant theta power during naturalistic social experiences*. Dev. Cogn. Neurosci. 63:101300. <https://doi.org/10.1016/j.dcn.2023.101300>

**Gui A.**, Rizzo G., Perelli D., Ferruzza E. and Mercuriali E. (2023) *Children's total blindness as a risk factor for early parent-child relationships: preliminary findings from an Italian sample*, Front. in Psychol. 14:1175675. <https://doi.org/10.3389/fpsyg.2023.1175675>

Haartsen R., Mason L., Garces P., **Gui A.**, Charman T., Tillmann J. et al. (2022) *Qualitative differences in the spatiotemporal brain states supporting configural face processing emerge in adolescence in autism*, Cortex, 155, 13-29, <https://doi.org/10.1016/j.cortex.2022.06.010>

Tye, C., Bussu, G., Gliga, T., Elsabbagh, M., Pasco, G., Johnsen, K., Charman, T., Jones, E. J. H., Buitelaar, J., Johnson, M. H. and the **BASIS team** (2022) *Understanding the nature of face processing in early autism: A prospective study*. Journal of Psychopathology and Clinical Science, 131(6), 542–555, <https://doi.org/10.1037/abn0000648>

**Gui A.**, Throm E.V., da Costa P.F., Haartsen R., Leech R. and Jones E.J.H. (2022) *Proving and improving the reliability of infant research with Neuroadaptive Bayesian Optimization*. Infant and Child Development, e2323, <https://doi.org/10.1002/icd.2323>

Carnevali L., **Gui A.**, Jones E.J.H. and Farroni T. (2022) *Face processing in early development: a systematic review of behavioural studies and considerations in times of COVID-19 pandemic*, Front. Psychol. 13:778247, <https://doi.org/10.3389/fpsyg.2022.778247>

Fish L.A., Nyström P., Gliga T., **Gui A.**, Begum Ali J., Mason L. et al. (2021) *Development of the pupillary light reflex from 9 to 24 months: associations with common autism spectrum disorder (ASD) genetic liability and 3-year ASD diagnosis*, Journal Child Psychology & Psychiatry, <https://doi.org/10.1111/jcpp.13518>

**Gui A.**, Meaburn E., Tye C., Charman T., Johnson M.H. and Jones E.J.H. (2021) *Association of polygenic liability for autism with face-sensitive cortical responses from infancy*, JAMA Pediatrics, 175(9):968-970, <https://doi.org/10.1001/jamapediatrics.2021.1338>

**Gui A.** (2021) *A neurodevelopmental perspective on sex-differentiated genetic effects on behavior*, Biological Psychiatry, 89:12, e63-e65, <https://doi.org/10.1016/j.biopsych.2021.04.011>

**Gui A.**, Bussu G., Tye C., Elsabbagh M., Charman T., Johnson M.H. and Jones E.J.H. (2021) *Attentive brain states to faces in infants with and without later autism*, Translational Psychiatry, 11: 196, <https://doi.org/10.1038/s41398-021-01315-9>

**Gui A.**, Mason, L., Gliga, T., Hendry, A., Begum Ali, J., Pasco G., Shephard E., Curtis C., Charman T., Johnson M.H., Meaburn E., Jones E.J.H. and the BASIS team (2020) *Look duration at the face as a developmental endophenotype: elucidating pathways to Autism and ADHD*, Development and Psychopathology, 1-20, <https://doi.org/10.1017/S0954579420000930>

**Gui A.**, Jones E.J.H., Wong C.C.Y., Meaburn E., Xia B., Pasco G., Lloyd-Fox S., Charman T., Bolton P., Johnson M.H. and the BASIS team (2020) *Leveraging epigenetics to understand developmental trajectories of social attention: A proof-of-principle study of DNA methylation in infants with an older sibling with autism*, Infant Behavior and Development, 60: 101409, <https://doi.org/10.1016/j.infbeh.2019.101409>

Braithwaite E., **Gui A.** and Jones E.JH (2020) *Social attention: What is it, how can we measure it, and what can it tell us about autism and ADHD?*, in Sabine Hunnius, Marlene Meyer, *Progress in Brain Research: Early Social-Cognitive Development*, Elsevier, 254: 271- 303, <https://doi.org/10.1016/bs.pbr.2020.05.007>

## **AWARDS AND FUNDINGS**

### Grants

Mar 2025-Jul 2025 **Essex ESNEFT Psychological Research Unit for Behaviour, Health and Wellbeing (EEPRU)**. *Amount: £4,891.80, Role: PI. Title: Measuring food preferences in young children.*

Oct 2023 – Aug 2027 **MRC industrial Collaborative Awards in Science and Engineering (iCASE) Doctoral Training Partnership** - grant (MR/W006774/1). *Amount: £129,555 (estimated value of a notional iCASE studentship in 2022). Role: co-I. Title: Mapping attentive brain states in real time to support parent-child interaction in autism.*

Oct 2022-Mar 2023 **Wellcome/Birkbeck ISSF: Psychological Sciences, Conferences and Symposia**. *Amount: £2,450, Role: PI. Title: Series to Tackle Racism in Developmental Science (STRIDES).*

Aug 2022-Jul 2023 **Research Innovation Fund** supported by Birkbeck. *Amount: £ 4,515, Role: PI. Title: Neuroadaptive Optimisation to study individual differences in parent-child social interaction.*

Jul-Aug 2022 **BBSRC LIDo Research Experience Placement**. *Amount: £4,000, Role: PI. Title: Neuroadaptive Optimisation to study individual differences in parent-child social interaction.*

Apr-Jul 2019 **Wellcome/Birkbeck ISSF post-doc funding**. *Amount: £9,664, Role: PI. Title: Applying neuroadaptive optimisation to understand individual differences in infant brain responses to social cues.*

### Scholarships

Academic years 2015-2019 **Marie Skłodowska-Curie Innovative Training Network PhD fellowship**.

Feb-Jul 2015 **European mobility scholarship**.

Sept 2014-Jan 2015 **Centre National de la Recherche Scientifique**.

Sept 2014-Jan 2015 **Opera Universitaria Stage University of Studies of Trento**.

### Other awards

Aug 2025 *Shortlisted for Kathy Sylva 'Rising Star' Award*, Association for the Child and Adolescent Mental Health

May 2025 **Developmental Science Early Career Researcher Award**, Wiley Psychology

Feb 2023 **Abilitazione Scientifica Nazionale alle funzioni di professore universitario di Seconda Fascia nel Settore Concorsuale 11/E2 - PSICOLOGIA DELLO SVILUPPO E DELL' EDUCAZIONE**, Ministero dell'Università e della Ricerca

May 2017 **Merit Award, University of Studies of Trento**

## **CONFERENCE PRESENTATIONS AND INVITED TALKS**

*"Il ruolo degli ERP nell'età evolutiva"*, invited seminar, Seminari della Scuola di Specializzazione in Neuropsichiatria Infantile Tor Vergata (11<sup>th</sup> Nov, 2025).

“A meta-analysis of genetic effects on infants’ age at onset of walking”, talk, Big Team Science Conference 2025, online (8<sup>th</sup> Oct, 2025).

“DNA, EEG and eye-tracking to understand mechanisms underlying neurodevelopmental conditions”, invited talk, European Society of Child and Adolescent Psychiatry (ESCAP) Residential School, Catania, Italy (3<sup>rd</sup> Oct, 2025).

“The Developing Brain in a Social Context: Exploring the Relationship Between Exposure to Caregivers’ Faces and Neural Correlates of Infant Attention”, talk, Congresso Nazionale della Società Italiana di Psicofisiologia e Neuroscienze Cognitive, Verona, Italy (18<sup>th</sup> Sept, 2025).

“Contributi poligenici al neurosviluppo – DNA, EEG e eye-tracking per comprendere le differenze individuali nelle traiettorie evolutive”, invited seminar, Seminari della Scuola di Specializzazione in Neuropsichiatria Infantile Tor Vergata (15<sup>th</sup> Jul, 2025).

“Oltre la ricerca della normalità, verso una cultura scientifica che valorizza l’individuo”, invited talk, Conferenza annuale BabyBrains Il Parto Positivo, Reggio Emilia, Italy (5<sup>th</sup> Apr, 2025).

“Nuove evidenze scientifiche sull’autismo per cogliere e capire le differenze individuali sin dai primi anni di vita”, invited talk, Convegno – Corso di perfezionamento: Autismo e Apprendimento nell’arco della vita, Università degli Studi di Trieste, Trieste, Italy (22<sup>nd</sup> Mar, 2025).

“Real-time neuroimaging to capture individual infants’ interest to social cues”, invited seminar, Language & Cognition Lab, Paris Descartes, France (14<sup>th</sup> Nov, 2024).

“From genetics to neuroimaging to identify early individual differences in infant siblings of children with autism”, invited talk, Italian conference on ‘Individual differences in autism spectrum disorders in the first years of life’, Lecco, Italy (12<sup>th</sup> Oct, 2024).

“Personalising experimental designs to appreciate diversity in social attention”, invited seminar, RESPECT 4Neurodevelopment Lunch Seminar Series (22<sup>nd</sup> Jul, 2024).

“Neuroadaptive Bayesian optimisation to study individual differences in infants’ engagement with social cues”, talk, International Congress of Infant Studies (ICIS), Glasgow, UK (10<sup>th</sup> Jul, 2024).

“Complementary approaches to investigate genetic contributions to infant psychologically-relevant traits”, symposium chair and discussant, International Congress of Infant Studies (ICIS), Glasgow, UK (10<sup>th</sup> Jul, 2024).

“Insights into the neurobiology of social development”, invited seminar, Developmental Psychobiology Lab, University of Studies of Pavia, Italy (26<sup>th</sup> Oct, 2022).

“First insights on the common genetic architecture of early motor development”, invited seminar, Centre for the Developing Brain, King’s College London, UK (22<sup>nd</sup> Apr, 2022).

“Dalla ricerca alla clinica: come conoscere la neurobiologia dell’autismo può cambiare l’approccio al bambino e alla famiglia”, invited seminar, Medical Centre of Phoniatrics, Padova, Italy (23<sup>rd</sup> Oct 2021).

“Neuroadaptive optimization to study how neural signatures of attention to faces in infants relate to later autism”, talk, International Congress of Infant Studies (ICIS), online (9<sup>th</sup> Jul, 2020).

“Using developmental endophenotypes to dissect neurodevelopmental disorders: Autism, ADHD and early focused attention”, invited talk, BASIS Annual Meeting, London, UK (16<sup>th</sup> Sept, 2019).

“Diminished engagement of attentive brain states to faces predicts later autism”, flash-talk, The Developing Brain in Health and Disease Scientific Meeting, Oxford, UK (21<sup>st</sup> May, 2019).

“Evaluating evidence for social attention as an endophenotype for Autism Spectrum Disorder”, departmental seminar, Birkbeck College, London, UK (13<sup>th</sup> Oct, 2018).

“Leveraging epigenetics to understand differences in the development of social skills”, talk, Early Typical and Atypical Development Conference, London, UK (20<sup>th</sup> Sept, 2018).

“Neural sensitivity at 8 months predicts ASD-outcome and social behavior at 3 years”, talk, International Society for Autism Research (INSAR) 2018 Conference, Rotterdam, the Netherlands (11<sup>th</sup> May, 2018).

“Genetic, familial and epigenetic contributions to social attention in infants with emerging Autism Spectrum Disorders”, invited talk, Geschwind Lab - UCLA, Los Angeles, USA (20<sup>th</sup> Dec, 2017).

## **PUBLIC ENGAGEMENT**

### Articles:

- How genes influence the timing of a baby’s first step – 7<sup>th</sup> May 2025 @ [Psychology Today](#)
- Cutting-edge technique sees how babies respond to face – 2<sup>nd</sup> Dec 2024 @ [Essex News](#)
- Connecting autism-linked genetic variation to infant social behavior – 10<sup>th</sup> Aug 2021 @ [Spectrum](#), <https://doi.org/10.53053/IZSQ9571>
- Infants’ brain activity when seeing faces is written in their DNA – 8<sup>th</sup> Jun 2021 @ [Birkbeck News](#)
- Attentive brain states to faces in infants with and without later autism – 12<sup>th</sup> Apr 2021 @ [AIMS-2-TRIALS News](#)
- Investigating early neurodiversity – 21<sup>st</sup> Mar 2021 @ [ASPIRING TO BE YOU](#)
- Exploring the genetics of how infants look at faces and how this may be linked to autism – 11<sup>th</sup> Jan 2021 @ [AIMS-2-TRIALS News](#)
- Researchers shine a light on the biology of social skills in autism – 13<sup>th</sup> Oct 2020 @ [AIMS-2-TRIALS News](#)
- Babylab Newsletter 2018, 2020 and 2023 (<http://cbcd.bbk.ac.uk/babylab/newsletter>)

### Events:

- *Radio24 Obiettivo salute interview: “Primi passi: ogni bambino ha i suoi tempi, ma i geni ci mettono lo zampino”* – 13<sup>th</sup> May 2025  
<https://www.radio24.ilsole24ore.com/programmi/obiettivo-salute/puntata/trasmissione-13-maggio-2025-2200-2356186655655223>
- *Babylab coffee morning for parents* at the Health, Wellbeing and Care Hub, University of Essex: “I like to move it, move it! Everything you need to know to promote your little one’s motor development” in collaboration with pediatric physiotherapist Emma Blower – 22<sup>nd</sup> November 2024.
- *BabyBrains Annual conference 2024, invited live interview* on YouTube: “If you know them, you welcome them. Atypicalities and the environment in the first years of life” – 5<sup>th</sup> June 2024.  
<https://www.youtube.com/watch?v=Tm0vyJLwbuc>
- *Babylab coffee morning for parents* at the Health, Wellbeing and Care Hub, University of Essex: “Supporting every child’s neurodevelopment” in collaboration with occupational therapist Andrea Hattrell-Caney – 4<sup>th</sup> June 2024.
- *BONDS and L.O.V.E. parent workshop*, in collaboration with BabyBrains – 5<sup>th</sup> Feb 2023  
<https://www.babybrains.info/parent-workshops>
- *From The Womb to the World (WoW) Live chat* hosted by BabyBrains on YouTube “Oh Brain! Tell me what my baby likes!” (144 views) – 21<sup>st</sup> Oct 2022  
<https://www.youtube.com/watch?v=jpVsGxLG3-o&t=1s>
- *Birkbeck Babylab Coffee Talk: “Why are we social?”* – 16<sup>th</sup> Feb 2021  
<https://www.youtube.com/watch?v=UKY1EaXLRxs>
- *From The Womb to the World (WoW) Live chat* hosted by BabyBrains and Il Parto Positivo on facebook: “Interactions with hidden faces” (in Italian) (2.4k views) – 21<sup>st</sup> Sep 2020

[https://fb.watch/f6vG\\_BcVvq/](https://fb.watch/f6vG_BcVvq/)

- *Science workshop on DNA for grade 6 students (age 11-12 years) of the Rhodes Primary School in London – 17<sup>th</sup> Jan 2020*
- *BASIS Participants and Parent Expo, Clore Management Centre (Birkbeck), London, UK – 22<sup>nd</sup> Jun 2019*

## **OTHER SKILLS**

### Editorial and review activity:

- Special Topic editor for *Frontiers in Psychology* (“Risk and Protective Factors, Family Environment and (A)Typical Neurodevelopmental Outcomes”)
- Review editor for *Frontiers in Psychology – Pediatric Psychology*
- Handling editor for *Frontiers in Neuroscience – Translational Neuroscience*
- Ad-hoc reviewer for: *Journal of Child Psychology and Psychiatry*, *Translational Psychiatry*, *Autism*, *Journal of Autism and Developmental Disorders*, *Psychological Medicine*, *Frontiers in Psychology*, *Infant Behavior and Development*, *Journal of Experimental Psychology*, *Imaging Neuroscience*, *Developmental Science*.

### Software and programming skills:

- Programming and statistical analyses using *R* and *Matlab*
- *Unix/Linux shell* scripting for program execution
- Statistical analyses using *IBM SPSS software*
- EEG data pre-processing using *Matlab*, *R*, *BrainVision* and *NetStation*
- fMRI data pre-processing using *FSL*
- Database management using *FileMaker* and *RedCap*

### Scientific event organisation:

- *Ciclo di Seminari di Psicologia 2025-2026* per docenti, ricercatori e studenti del dipartimento di Medicina dei Sistemi, Università degli Studi di Tor Vergata – 21<sup>st</sup> Oct 2025 – 19<sup>th</sup> Jun 2026
- *Shades of Science*, Series of online panel events organized by the Diversity in Developmental Science network, spotlighting the academic journeys of ethnic minority researchers in developmental psychology and neuroscience – 29<sup>th</sup> Sept 2025, 25<sup>th</sup> June 2025, 17<sup>th</sup> Apr 2024  
<https://sites.google.com/view/diversityindevsci/events/shades-of-science-series>
- *Series to Tackle Racism in Developmental Science* (monthly meetings for staff and students at the CBCD to increase racial diversity in developmental science) – Jan-Mar 2023
- *Bio-Medical Association Social Lunch* (weekly meetings for PhD students and postdoc at CBCD to discuss science and socialize over lunch) – Oct 2018-Jan 2020
- *Early Typical and Atypical Development (ETADE) international conference* (160 attendees), Clore Management Centre (Birkbeck), London, UK – 20<sup>th</sup> Sept 2018

## **MATERNITY LEAVES**

[19/03/2023 – 29/11/2023] Congedo di maternità

[06/04/2020 – 07/10/2020] Congedo di maternità

[03/01/2017 – 30/06/2018] Congedo di maternità

Il sottoscritto è a conoscenza che, ai sensi dell'art. art. 76 del DPR 445/2000, le dichiarazioni mendaci, la falsità negli atti e l'uso di atti falsi sono puniti ai sensi del codice penale e delle leggi speciali. Inoltre, il sottoscritto autorizza al trattamento dei dati personali ai sensi dell'art. 13 GDPR 679/16 – “Regolamento europeo sulla protezione dei dati personali”.

Roma, 12/11/2025

