

## 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, University of Rome Tor Vergata, Rome, 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 fellowship), 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 Science**. University of Studies of Trento, Italy.  
2011-2013 **First level Master in Child Rehabilitation and Research Methodology**. University of Studies of Modena and Reggio-Emilia, Italy.  
2005-2008 **BSc in Neurological and Psychomotor Approach Therapy**, University of Studies of Padova, Italy.

### PUBLICATIONS

**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, <https://doi.org/10.1101/2024.05.07.24306845>

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.J.H. (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>

## **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>th</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

#### 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:

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

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**

#### **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*