Samuel H. Forbes

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EMPLOYMENT

2024 - **Associate Professor in Developmental Science**, Department of Psychology, Durham University

2021 - **Assistant Professor in Developmental Science**, Department of Psychology, Durham University

2018 - 21 **Senior Research Associate**, School of Psychology, University of East Anglia

Supervisor: Prof. John P. Spencer
Project: Probing the neural basis of visual working memory in development (NIH).

EDUCATION

2014 - 18 **DPhil**, Experimental Psychology - University of Oxford, United Kingdom

Advisors: Prof. Kim Plunkett & Dr E. Matthew Husband
Dissertation: Colour word and colour category learning in infants and toddlers
Funding: Rhodes Scholarship

2011 - 13 **MA (Research and Coursework)**, Linguistics and Applied Linguistics, - Nanjing Normal University, PR China

Advisor: Assoc. Prof. Liang DanDan
Dissertation: A Comparative Study of the Use of the Perfective Aspect Under Narrative Conditions of English and Mandarin Children
Funding: Chinese Scholarship Council

2010 - 11 **Cert Lang**, Mandarin Chinese, - Nanjing Normal University, PR China

2009 **Grad Cert**, Asian Studies, - University of Tasmania, Australia

2006 - 08 **BA**, Japanese and Mandarin, - University of Tasmania, Australia

FUNDING AND AWARDS

2025 **ManyBabies5 Research award** Princeton University $2500 USD.

2023-25 **British Academy / Leverhulme Small Research Grant**, Tiredness in Infancy and Relationships to Effective Distribution of attention (TIRED) £9,328.35 (PI)

2023-24 **Durham University Seedcorn Grant**, Curiosity and the Home environment in Infant Language Development. £11824.44

2023 **Software Sustainability Institute Fellowship**, value £3000

2020	**Award for Special Merit in Research**, University of East Anglia
2019	**Flux Society Travel Award** $1000 USD for conference travel
2019	**LCICD Fee Waiver** valued at approximately £250
2017	**Brasenose College Hulme Completion Grant** funding associated with thesis completion.
2017	**Brasenose College Grant** funding for conference attendance £448
2016	**Brasenose College Grant** funding for conference attendance £450
2016 - 18	**Brasenose College Senior Hulme Scholarship** for outstanding DPhil performance
2015	**Brasenose College Grant** funding for conference attendance £436
2014 - 18	**Rhodes Scholarship** Tasmania & Brasenose 2014
2010 - 13	**Chinese Scholarship Council Award** for 4 years' study in PRC
2007 - 08	**Japan Student Services Organization Award** for 1 year exchange in Japan

Peer-Reviewed Publications

2025 Stutte, K., Gosse, L.K., ... **Forbes, S.H.**, ... & Zainodini, H. (2025). The fNIRS Glossary Project: A Consensus-based Resource for Functional Near-Infrared Spectroscopy Terminology. *Neurophotonics.*

2025 Floccia, C., Abdelwahab, A., **Forbes, S.H.,** Alsiddiqi, Z., Al-Shdifat, K., McKean, C., Odeh, T., Trebacz, A. & Khattab, G. (2025). Adaptation and Standardisation of two Arabic Communicative Development Inventories for Children Aged 8 to 30 Months and 30 to 48 Months in Egypt, Jordan and Palestine. *Journal of Language, Speech and Hearing Research.*

2025 **Forbes, S.H.** & Guest, O. (2025). To improve literacy, improve equality in education, not large language models. *Cognitive Science.*

2025 Lucca, K., Byers-Heinlein, K., ... **Forbes, S.H.**, ... & Hamlin K. (2025). Infants Social Evaluation of Helpers and Hinderers: A Large-Scale, Multi-Lab, Coordinated Replication Study (Stage 2 Registered Report). *Developmental Science, 28* (1).

2024 Guest, O., & **Forbes, S.H.** Teaching coding inclusively: If this, then what? *Tijdschrift voor Genderstudies. 27* (2/3). 196–217.

2024 Nguyen, T., Konu, D., & **Forbes, S.H.** (2024). Investigating solitude as a tool for downregulation of daily arousal using Ecological Momentary Assessments (Stage 2 Registered Report). *Journal of Personality.*

2024 **Forbes, S.H.**, Aneja, P., & Guest, O. (2024). The myth of normative development *Infant and Child Development. 33*(1). e2393.

2023 Wijeakumar, S., **Forbes, S.H.**, Magnotta, V., Deoni, S., Jackson, K., Singh, V.P., Tiwari, M., Kumar, A., & Spencer, J.P. (2023). Stunting in infancy is associated with atypical activation of working memory and attention networks. *Nature Human Behavior, 7*, 2219-2211.

2023 Fibla, L., **Forbes, S.H.**, McCarthy, J., Mee, K., Magnotta, V., Deoni, S., Cameron, D., & Spencer, J.P. (2023). Language exposure and brain myelination in early development. *Journal of Neuroscience, 43* (23). 4279-4290.

2023 **Forbes, S.H.**, & Plunkett K. (2023). Colour perception changes with basic colour word comprehension. *Developmental Science, 26* (6). e13406.

2023   Spencer, J.P., **Forbes, S.H.**, Naylor, S., Singh, V.P., Jackson, K., Deoni, S., Tiwari, M., & Kumar, A. (2023). Poor air quality is associated with impaired visual cognition in the first two years of life. *eLife. 12*, e83876.

2023   Bakopoulou, M., Lorenz, M., **Forbes, S.H.**, Tremlin, R., Bates, J., & Samuelson, L. (2023). Vocabulary and automatic attention: The relation between novel words and gaze dynamics in noun generalization. *Developmental Science 26*, (6). e13399

2022   Visser, I., Bergmann, C., Byers-Heinlein, K., Dal Ben, R., Duch, W., **Forbes, S.H.**, ... et al. (2022). Improving the generalizability of infant psychological research: The ManyBabies model. *Behavioural and Brain Sciences. 45,* e35.

2021   Defenderfer, J., **Forbes, S.H.**, Wijeakumar, S., Hedrick, M., Plyler, P., & Buss, A. (2021). Frontotemporal activation differs between perception of simulated cochlear implant speech and speech in background noise: An image-based fNIRS study. *Neuroimage. 240*, 118385.

2021   **Forbes, S.H.**, Wijeakumar, S., Eggebrecht, A., Magnotta, V., & Spencer, J.P. (2021). Processing pipeline for image reconstructed fNIRS analysis using both MRI templates and individual anatomy. *Neurophotonics. 8*(2), 025010.

2021   **Forbes, S.H.** & Plunkett, K. (2021). The development of contour processing abilities in the second year. *Developmental Psychology. 57*(5), 639-650.

2021   Abdelwahab, A.G., **Forbes, S.H.**, Cattani, A., Goslin, J., & Floccia, C. (2021). An adaptation of the MacArthur-Bates CDI in 17 Arabic dialects for children aged 8 to 30 months. *Language Learning and Development. 17*(4), 425-446.

2020   **Forbes, S.H.** (2020). PupillometryR: An R package for preparing and analysing pupillometry data. *Journal of Open Source Software. 5*(50), 2285.

2020   Delgado Reyes, L., Wijeakumar, S., Magnotta, V.A., **Forbes, S.H.**, & Spencer J.P. (2020). The functional brain networks that underlie visual working memory in the first two years of life. *NeuroImage. 219*, 116971.

2020   **Forbes, S.H.**, & Plunkett, K. (2020). Linguistic and cultural variation in early color word learning. *Child Development. 91*(1), 28-42.

2019   **Forbes, S.H.**, & Plunkett, K. (2019). The role of colour labels in mediating infant visual attention. *Cognition. 186*, 159-170.

2019   **Forbes, S.H.**, & Plunkett, K. (2019). Infants show early comprehension of basic colour words. *Developmental Psychology. 55*(2), 240-249.

2017   **Forbes, S.H.**, & Plunkett, K. (2017). Early colour word learning in British infants. *Proceedings CogSci*, 367-372.

2015   Liang D.D., Song, Y.Q., **Forbes, S.H.** (2015). A contrastive study of the perfective aspect use in English and Chinese children's narratives. *Foreign Language Teaching and Research 7*(1), 81-93.

Publications under review

Under Review   **Forbes, S.H.**, Aneja, P., & Rodriguez Saveedra, A. Going WILD keeps developmental theories in context. *Brain and Behavioral Sciences.*

Under Review   Johns, E., **Forbes, S.H.**, Delgado Reyes, L., & Spencer, J.P. Tracking the trajectory of executive function from 2.5 to 6.5 years of age and the impact of COVID-19. *Child Development.*

Under Review	Clucas, L.J., & **Forbes, S.H.** A specific scaffolding role for gesture in early word learning. *Child Development Perspectives*.
Under Review	Clucas, L.J., & **Forbes, S.H.** Pointing it out: Gesture has specific effects on vocabulary acquisition. *Infancy*.
Under Review	Clucas, L.J., & **Forbes, S.H.** I saw the sign: Symbolic gesture is associated with higher infant vocabulary. *Journal of Child Language*.
Under Review	Visser, I., Geambasu, A., ... **Forbes S.H.**, ... Levelt, C.C. ManyBabies 3: A multi-lab study of infant algebraic rule learning Stage 2 Registered Report under review at *Developmental Science*.
Under Review	Schuwerk, T., Kampis, D., ... **Forbes S.H.**, ... Rakoczy, H. Action anticipation based on an agent's epistemic state in toddlers and adults. Stage 2 Registered Report under review at *Child Development*.
Under Review	Kosie, J. E., Zettersten, M., Abu-Zhaya, R., Amso, D., ... **Forbes, S.H.**, ... & Lew-Williams, C. ManyBabies 5: A large-scale investigation of the proposed shift from familiarity preference to novelty preference in infant looking time. Stage 1 Registered Report accepted at *Nature Human Behavior*. Preprint: https://doi.org/10.31234/osf.io/ck3vd

OTHER PUBLICATIONS AND MEDIA ENGAGEMENT

2024	'Why there's no such thing as normal in child development' by Samuel H Forbes and Prerna Aneja. *The Conversation*. Link.
2021	Why Cinema is more exciting, with Showcase Cinemas and Keith Lemon. https://www.youtube.com/watch?v=Qv8zlPuv2Hw&ab_channel=IkonLondonMagazine

OPEN SOURCE SOFTWARE CONTRIBUTIONS

2021	**Forbes, S.H.** Dink, J., & Ferguson, B. eyetrackingR http://www.eyetracking-r.com
2020	**Forbes, S.H.** digitizeR https://github.com/samhforbes/digitizeR
2019	**Forbes, S.H.** PupillometryR: An R package for preparing and analysing pupillometry data. https://github.com/samhforbes/PupillometryR
2019	**Forbes, S.H.** DDLab: Common eyetracking functions needed in the Developmental Dynamics Lab. https://github.com/samhforbes/DDLab

SUPERVISION

PhD Students
2023 -	**Lauryn Clucas** — Gesture and language development in infancy.
2023 -	**Giulia D'Avino** — Infant attention and tiredness.
2023 -	**Nina Jost** — Early numerical cognition and number words.
2024 -	**Oscar Sill** — Infant perceptual and motor development. (Co-supervisor)
2024 -	**Shuai Shao** — Private speech and self regulation in infants

	MSc Projects
2025 - 26	**Nina Coetzer** — Infant tiredness and sleep
	Kalypso Panagiotou — Individual differences in infant cognition
	Lottie Randall — Early markers of infant colour cognition
2024 - 25	**Jia Jia** — Infant tiredness and working memory
	Sanjana Dharmaraju — Infant colour recognition
2023 - 24	**Charley Spence** — Nursery education and executive functioning
	Chloe Lam — Infant visual working memory and attention
	Blain Wallace — Tiredness and word learning in toddlers.
2022 - 23	**Dorothy Angdinata** — Links between infant sleep, maternal sleep, and maternal mental health
	Zahra Mollaie — Influence of language input and gesture input of caregivers on language output
2021 - 22	**Lauryn Clucas** — The role of gesture in early language
	Jo Yee Goh — The development of grammatical categories in infancy
2020 - 21	**Tyler Wallace** — The origins of early executive attention

	Undergraduate Dissertation / Projects
2018 -	Over 30 undergraduate dissertations supervised since 2018. Projects all on infancy, but range from questionnaire data, video coding, secondary data, in-person eyetracking, and neuroimaging.

Teaching

2021 -	**Department of Psychology, Durham University**
	Current Issues in Developmental Psychology and Psychopathology
	- Course coordinator
	- Lectures to MSc students on early adversity, cognition and development of sleep
	Language, Literacy and Numeracy in the Developing Brain
	- Course coordinator
	- Designed and taught new module alongside Dr Anna Matejko
	Introduction to Psychology — Developmental and Social Psychology
	- Redesigned developmental module for > 400 first-year students
	Advanced Developmental Psychology Review
	- Led a tutorial group of MSc Students to write a review paper each on word learning in infancy
	Contemporary and Conceptual Issues in Psychology
	- Led three tutorial groups in topics relating to early adversity in childhood
2018 - 21	**Senior Postdoctoral Research Associate, UEA**
	Introduction to fNIRS and demonstration
	- Ran workshops and demonstrations for second-year, third-year and MSc courses
	Open Science and Reproducibility
	- Designed and ran a lecture on replicability and publishing in Developmental Psychology for MSc students
	- Designed and ran a similar seminar for incoming PhD students
2015-18	**DPhil Candidate, University of Oxford**
	Language and Cognition
	- Responsible for tutoring groups of 3 students at multiple colleges each year
	- Redesigned and ran a core practical in MATLAB on research design for undergraduates
2011 - 13	**MA Candidate and Lecturer, NJNU**
	English in an Educational Context
	- Designed and lectured 2 units per year to both of 3rd and 4th year undergraduates
	- Responsible for examination and grading of students

Invited talks and keynotes

Oct. 2025	**University College London,**

Title: Stacking the building blocks of early language development
Host: Jo Taylor

May 2024   **Workshop on Colour**, London.
Title: Linking colour categories to colour words and back again

Feb. 2024   **University of Warwick**
Title: Pointing the way to positive language development
Host: Sotaro Kita

Jan. 2024   **Teaching programming to non-programmers**, Edinburgh
Title: Teaching coding inclusively

Feb. 2022   **Durham RIOTS Club**
Title: Version Control for Academics with GitHub
Host: Thuy-vy Nguyen

Feb. 2021   **University of York**
Title: Mommy and me: Using cross-cultural methods to understand links between infant and mothers cognition.
Host: Eve Holden

Feb. 2021   **University of Oslo**
Title: Was Whorf Half Right? Examining Colour Words and Colour Perception.
Host: Prof. Julien Mayor

Sep. 2020   **BASIS 2020**, Virtual conference
Title: Examining sleep and neural development in early infancy.

June 2019   **CLEAR 2019**, Potsdam
Title: PupillometryR: A framework for investigating pupillometry data in R.

Sep. 2018   **University of Sussex** Department of Psychology:
Title: Colour Word and Colour Category Learning in Infants and Toddlers
Host: Prof. Anna Franklin

Feb. 2018   **Oxford Brookes University** Department of Psychology:
Title: The Effect of Colour Word Learning on Colour Category Knowledge
Host: Dr. Nayeli Gonzalez-Gomez

Service to the field

Editorial Roles
2024 -   **Associate editor** at Journal of Child Language
2024 -   **Associate editor in chief** at Journal of Open Source Software
2022 - 2024 **Associate editor** at Journal of Open Source Software

Workshops ran
Mar 2024   **R for (Developmental) Psychologists**, Durham, March 18-19.
Sept 2017   **Mixed modelling in language data**, Department of Education, Oxford.
June 2017   **Bayesian modelling and BEST practices**, Oxford.

Conference Programme Committees
2025   Annual meeting of the Cognitive Science Society, San Francisco
2024   Annual meeting of the Cognitive Science Society, Rotterdam
2023   UK fNIRS Conference, Essex.

Selected Ad-Hoc Reviews
Collabra, Cortex, Child Development, Neuroimage, Developmental Psychology, Cognitive Science, Language Development Research, Journal of Open Source Software, Infant and Child Development, First Language, Journal of Experimental Child Psychology, Gates Open Research, Scientific Reports, Journal of Neuroscience

Selected Conference Presentations

Sept. 2025 UK branch of the Society for fNIRS, Cambridge
Talk Forbes S.H., Clucas, L., Stansfield, S., & D'Avino, G.
The role of tiredness in infant visual working memory

Sept. 2025 Annual meeting of the Flux society, Dublin
Poster Forbes S.H., Fibla, L., & Spencer, J.P.
How are language exposure and brain myelination related in early development? A preregistered longitudinal study

Aug. 2025 Lancaster Conference on Infant and Early Child Development (LCICD)
Poster Forbes S.H., Simon J., Jost, N. & Matejko, A.
Linguistic differences count for early number word learning

July 2024 International Congress on Infant Studies (ICIS)
Poster Forbes S.H., Fibla, L., & Spencer, J.P.
How are language exposure and brain myelination related in early development? A preregistered longitudinal study

July 2024 International Congress on Infant Studies (ICIS)
Talk Forbes S.H., Simon J., Jost, N. & Matejko, A.
Characterising early number word learning across languages and cultures

Aug. 2023 8th Lancaster Conference on Infant and Early Child Development (LCICD)
Talk Forbes S.H., Clucas L., & Mollaie, Z.
Good Point! Do gestures predict language development?

Aug. 2022 7th Lancaster Conference on Infant and Early Child Development (LCICD)
Poster Forbes, S.H., & Plunkett, K.
Examining the links between infant colour vocabulary and categorical perception

Aug. 2021 6th Lancaster Conference on Infant and Early Child Development (LCICD), Virtual
Poster Forbes, S.H., McCarthy, J., Grewal, J., Spencer, J.P.
Shining light on the links between sleep and visual working memory in infancy

Sep. 2020 Flux Virtual Conference.
Poster Forbes, S.H., Wijeakumar, S., Delgado Reyes, L., Kumar, A., Magnotta, V., Spencer J. Assessing the development of visual working memory in a global context: The INDIA Project.

July 2020 Virtual International Conference on Infant Studies (ICIS)
Poster Forbes S.H. PupillometryR: An R tool for measuring infant visual behaviour through pupil size

July 2020 Virtual International Conference on Infant Studies (ICIS)
Poster Forbes, S.H., Wijeakumar, S., Delgado Reyes, L., Kumar, A., Magnotta, V., Spencer, J.P. Assessing the development of visual working memory in a global context: The INDIA project

Sept. 2019 fNIRS UK, Birmingham
Poster Forbes, S.H., Delgado Reyes, L., Magnotta, V., Spencer, J.P.
An fNIRS-based approach to understanding the role of sleep in the development of visual working memory

Aug. 2019   Annual Meeting of the Flux Society, NY
Poster Forbes, S.H., Delgado Reyes, L., Grewal, J., Deoni, S., Spencer J.P.
The role of sleep in early infant myelin development

Aug. 2019   4th Lancaster Conference on Infant and Child Development (LCICD), Lancaster
Talk Forbes, S.H., Delgado Reyes, L., Grewal, J., Deoni, S., Spencer J.P.
The role of sleep in the development of visual working memory.

Aug. 2019   4th Lancaster Conference on Infant and Child Development (LCICD), Lancaster
Talk Forbes, S.H. Measuring infant visual behaviour through pupil size:
An introduction to PupillometryR.

Aug. 2019   4th Lancaster Conference on Infant and Child Development (LCICD), Lancaster
Talk Aneja, P., Forbes, S.H., Spencer, J.P. Visual exploration during parent-infant
interaction in India and UK

July 2019   European Congress of Psychology, Moscow
Talk Forbes, S.H., Delgado Reyes, L., Grewal, J., Deoni, S., Spencer J.P.
The role of sleep in visual working memory and brain health. Part of a symposium:
Global Brain Health and Development chaired by S.H. Forbes

June 2019   CLEAR 2019, Potsdam
Talk Forbes S.H. PupillometryR: A framework for investigating pupillometry data in R.

Mar. 2019   Society for Research in Child Development
Poster Forbes, S.H., Delgado Reyes, L.M., Grewal, J., Cassidy, J.R., Spencer, J.P.
A Neurodevelopmental Approach to Understanding the Role of Sleep in the Development of
Visual Working Memory

Oct. 2018   Biennial Meeting of the Society for fNIRS, Tokyo
Poster Forbes, S.H., Delgado Reyes, L.M., Cassidy, J.R., Spencer, J.P.
A Neurodevelopmental Approach to Understanding the Role of Sleep in the Development of
Visual Working Memory

Sep. 2018   2nd British Psychological Society East of England Conference, Norwich
Talk Forbes, S.H., Delgado Reyes, L.M., Cassidy, J.R., Spencer, J.P.
A Neurodevelopmental Approach to Understanding the Role of Sleep in the Development of
Visual Working Memory

Sep. 2018   3rd Lancaster Conference on Infant and Child Development (LCICD), Lancaster
Talk Forbes, S.H., & Plunkett, K. Visual Closure in Early Colour Vision Testing.

Aug. 2017   2nd Lancaster Conference on Infant and Child Development (LCICD), Lancaster
Poster Forbes, S.H., & Plunkett, K. The Role of Labels in Understanding Contextual
Information.

Aug. 2016   1st Lancaster Conference on Infant and Child Development (LCICD), Lancaster
Talk Forbes, S.H., & Plunkett, K. The Development of Colour Word Knowledge
in Infants and Toddlers

July 2016   39th Annual Meeting of the Cognitive Science Society, London
Talk Forbes, S.H., & Plunkett, K. Early Colour Word Learning in British Infants

July 2016   39th Annual Meeting of the Cognitive Science Society, London
Poster Forbes, S.H., & Plunkett, K. The Development of Visual Closure in Infancy

May 2016   2016 International Conference on Infant Studies (ICIS), New Orleans
Poster Forbes, S.H., & Plunkett, K. The Development of Colour Word Knowledge in
Infants and Children

Public Engagement

Oct. 2024   **Celebrate Science, Durham**
- Helped at public event explaining psychology games to children

Mar. 2024   **Spotlight on colour, Life Centre, Newcastle**
- Ran activities about colour with children and parents

Oct. 2023   **Celebrate Science, Durham**
- Helped at public event explaining psychology games to children

Oct. 2022   **Celebrate Science, Durham**
- Helped at public event explaining psychology games to children

Aug. 2022   **Junior Scientist Days, Durham**
- Helped with 2 days of science events and recruitment for children in Durham

May 2019   **Pint of Science, Norwich**
- 3 Nights of presenting neuroscience and psychology fact or myth quiz

Sep. 2017   **Oxford Curiosity Carnival**
- Public engagement explaining work and playing games with parents and children

July 2016   **UNIQ Summer School**
- Presented an interactive introduction and workshop on testing infants
- For outstanding State School students interesting in studying at Oxford

Feb. 2016   **Oxford Making Links** St Catherine's College, Oxford
- Presented a portion of research to teachers involved in early years teaching

Sep. 2015   **Belfast Baby Day**
- Presented two invited talks to mothers and researchers at inaugural Belfast Baby Day

Technical Skills

Statistics   Bayesian hierarchical modeling, mixed effect modeling, survival analysis, GAMs, FDA
Familiar with common packages such as STAN, JAGS, lme4, brms, ggplot2, etc
Network modelling, clustering and machine learning

Processing   Structural and mcDESPOT MRI analysis pipelines using AFNI, FSL, ANTS etc
Eye-tracking and Pupillometric time course analysis using a variety of tools and devices
HOMER2, HOMER3 and NIRFast fNIRS analysis

Coding   R, Python, Matlab, Julia, Bash, LaTeX

Testing   Infant & Adult Eye-tracking, Pupillometry, fNIRS, Head-mounted eye-tracking,
MRI scanning, EEG, biometric measurement