

# NEURONEXUS: ALGORITHM FOR PERSONALIZED CONNECTION OF NEURODIVERGENT INDIVIDUALS TO INTEGRAL CARE PROFESSIONALS

Bianca Miyuki Ogawa de Santana, Universidade Cruzeiro do Sul, NEAP, Brazil  
ORCID: 0009-0000-7865-9508

Beatriz da Costa Prado, Braine Digital, Brazil  
ORCID: 0000-0002-3556-6149

Johann de Carvalho Salamon, PsiConecta, Brazil  
ORCID: 0009-0000-9285-1213

Lucas Gabriel Cardoso Jandrey, PsiConecta, Brazil  
ORCID: 0009-0002-4932-3778

Gabriel Felipe Cotta Cirino, Universidade de São Paulo, PPGCI ECA-USP, Brazil  
ORCID: 0009-0004-2729-5731

Jessica Pereira da Silva, Universidade Cruzeiro do Sul, NEAP, Brazil  
ORCID: 0009-0009-6021-6720

## Resumo

O NeuroNexus é um projeto conceitual em fase de ideação que busca, pela lente da Ciência da Informação (CI) e da Teoria Geral do Inconsciente Informacional Computacional (TG-IIC), criar uma ponte tecnológica entre pessoas neurodivergentes e profissionais de cuidado integral. A iniciativa combina levantamento quantitativo de necessidades, modelagem semântica de perfis e algoritmos de aprendizado de máquina para aproximar dados clínicos, preferências de comunicação e contextos de vida. Ao integrar camadas explícitas e latentes de informação, a proposta pretende encurtar o tempo de busca por apoio especializado, aumentar a assertividade das conexões e, assim, favorecer inclusão social e saúde mental. Embora ainda sem resultados empíricos, o projeto delinea um roteiro de desenvolvimento guiado por ética informacional, legislações como LGPD e GDPR e padrões de interoperabilidade (HL7 FHIR).

**Palavras-chave:** Ciência da Informação; Neurodivergência; Inteligência Artificial; Cuidado Integral; TG-IIC

## Abstract

NeuroNexus is a conceptual, early-stage project developed through the lens of Information Science (IS) and the General Theory of Computational Informational Unconscious (TG-IIC). It seeks to design a technological bridge that connects neurodivergent individuals with integral care professionals. The initiative combines quantitative needs assessment, semantic profile modeling, and machine learning algorithms to integrate clinical data, communication preferences, and life contexts. By weaving together

explicit and latent layers of information, NeuroNexus aims to shorten search time, improve the precision of matches, and support social inclusion and mental health. While empirical results are not yet available, the project sets out a development roadmap guided by principles of informational ethics, data protection laws such as LGPD and GDPR, and interoperability standards like HL7 FHIR.

**Keywords:** Information Science; Neurodivergence; Artificial Intelligence; Comprehensive Care; TG-IIC

CONGRESS APPLICATION FORM			
Authors Name Surname	E-Mail Address	University, Faculty, Department, Country	ORCID
Bianca Miyuki Ogawa de Santana	bianca.santana01@cs.cruzeirosul.edu	UNICSUL, NEAP, Brazil	0009-0000-7865-9508
Beatriz da Costa Prado	beatriz@braine.digital	Braine, Brazil	0000-0002-3556-6149
Johann De Carvalho Salamon	johann.salamon@psiconecta.braine.digital	PsiConecta, Brazil	0009-0000-9285-1213
Lucas Gabriel Cardoso Jandrey	lucas.jandrey@psiconecta.braine.digital	PsiConecta, Brazil	0009-0002-4932-3778
Gabriel Felipe Cotta Cirino	cirino@usp.br	USP, PPGCI ECA-USP, Brazil	0009-0004-2729-5731
Jessica Pereira da Silva	jsilva2002@cs.cruzeirosul.edu.br	UNICSUL, NEAP, Brazil	0009-0009-6021-6720
PAPER INFORMATION			
Participation Type	Field of Study	Presentation Language	
Online	Web Semantic, Linked Data and Information Retrieval	Português (BR)	

# NEURONEXUS: ALGORITHM FOR PERSONALIZED CONNECTION OF NEURODIVERGENT INDIVIDUALS TO INTEGRAL CARE PROFESSIONALS

Ogawa<sup>1</sup>[0009-0000-7865-9508], Prado<sup>2</sup>[0000-0002-3556-6149], Salamon<sup>3</sup>[0009-0000-9285-1213], Jan-drey<sup>4</sup>[0009-0002-4932-3778], Cirino<sup>5</sup>[0009-0004-2729-5731] and Pereira<sup>6</sup>[0009-0009-6021-6720]

<sup>1</sup> UNICSUL, NEAP, Brazil

<sup>2</sup> Braine, Brazil

<sup>3</sup> PsiConecta, Brazil

<sup>4</sup> PsiConecta, Brazil

<sup>5</sup> USP, PPGCI ECA-USP, Brazil

<sup>6</sup> UNICSUL, NEAP, Brazil

bianca.santana01@cs.cruzeirodosul.edu

**Abstract.** NeuroNexus is a **conceptual, early-stage project** developed through the lens of Information Science (IS) and the General Theory of Computational Informational Unconscious (TG-IIC). It seeks to design a technological bridge that connects neurodivergent individuals with integral care professionals. The initiative combines quantitative needs assessment, semantic profile modeling, and machine learning algorithms to integrate clinical data, communication preferences, and life contexts. By weaving together explicit and latent layers of information, NeuroNexus aims to **shorten search time, improve the precision of matches**, and support social inclusion and mental health. While empirical results are not yet available, the project sets out a development roadmap guided by principles of informational ethics, data protection laws such as LGPD and GDPR, and interoperability standards like HL7 FHIR.

**Keywords:** Information Science; Neurodivergence; Artificial Intelligence; Comprehensive Care; TG-IIC

## 1 STRUCTURAL DISINFORMATION AND THE URGENCY OF INTEGRATED INFORMATIONAL CARE

Neurodivergent conditions often expose individuals to informational barriers stemming from the fragmentation of health and education services <sup>[7]</sup>. In IS, Floridi <sup>[4]</sup> argues that semantic information must be well-formed, meaningful, and true, distinguishing it from disinformation through its reliability. Within this framework, classic challenges emerge in information-seeking behavior <sup>[8]</sup> and informational injustice <sup>[6]</sup>, where clinical data, subjective indicators, and professional knowledge remain disconnected. Inspired by TG-IIC <sup>[2]</sup>, **NeuroNexus seeks to bridge these gaps through personalized connections among individuals, families, professionals, and public administrators** <sup>[9]</sup>.

## 2 SYMBOLIC-COMPUTATIONAL ARCHITECTURE: MODELING, ALGORITHMS, AND ETHICS

Grounded in models of information behavior<sup>[3,8]</sup>, the project begins with a quantitative survey designed to map both explicit needs (e.g., specialty, location) and latent aspects<sup>[1]</sup>. These data will support the development of a semantic ontology aligned with TG-IIC principles, structured through the CRISP-DM framework. A subsequent phase will involve a **prototype of a supervised algorithm**, refined through reflective user feedback. The entire cycle is governed by principles of informational justice and compliance with data protection laws such as LGPD, GDPR, HIPAA, and the forthcoming European AI Act (Regulation (EU) 2024/1689). The adoption of the HL7 FHIR standard underscores the project's commitment to ensuring interoperability across health and education systems.

## 3 FROM ALGORITHM TO CARE: INFORMATIONAL INCLUSION AS A TECHNOLOGY OF SUPPORT

Beyond simply matching users, **NeuroNexus aspires to reduce the cognitive burden of seeking care**, offering connections that respect functional, cognitive, and emotional compatibilities. The concept of neurodiversity, introduced by Singer<sup>[7]</sup>, underpins this commitment to designing a **person-centered solution** built on Privacy by Design principles. Once operational, the system aims to generate anonymized strategic data to support research, inform public policy, and strengthen interdisciplinary dialogue among IS, neuroscience, and AI.

## 4 FINAL CONSIDERATIONS AND NEXT STEPS

As a **conceptual project still in its ideation phase**, NeuroNexus does not yet have efficacy metrics. Nevertheless, it offers a promising scope by aligning robust theoretical foundations, strict ethical requirements, and significant potential for social impact. Planned next steps include:

1. Developing a **functional prototype** with a small pilot group;
2. Iterative validation of the ontology and algorithm;
3. Usability evaluation with end-users;
4. Measuring outcomes such as search time, match quality, and user satisfaction.

These stages aim to transform this conceptual proposal into a concrete, transparent, and responsible platform that serves the neurodivergent community.

## References

1. Cirino, G. F. C., Filgueiras, I. S., & Angeluci, A. C. B. (2025). Data visualization for public health policy: The DengueMap experience. *RECIIS*, 19(1), 1–14. <https://doi.org/10.29397/reciis.v19i1.4537>
2. Cirino, G. F. C. (2025). General Theory of Computational Informational Unconsciousness (TG-IIC) [Manuscript in preparation].
3. Dervin, B. (1992). From the mind's eye of the user: The sense-making qualitative-quantitative methodology. In *Qualitative Research in Information Management* (pp. 61–84). Libraries Unlimited.
4. Floridi, L. (2010). *Information: A Very Short Introduction*. Oxford University Press.
5. World Health Organization. (2011) *World Report on Disability: Summary*. WHO Press. <https://www.who.int/publications/i/item/WHO-NMH-VIP-11.01>
6. Ripoll, L., & Matos, J. C. M. (2020). Disinformation and semantic information: The philosophy of information and Luciano Floridi's contribution to informational reliability. *Em Questão*, 26(2), 211–232. <https://doi.org/10.19132/1808-5245262.211-232>
7. Singer, J. (2017). *Neurodiversity: The Birth of an Idea* (2nd ed.). Judy Singer Editor.
8. Wilson, T. D. (1999). Models in information behaviour research. *Journal of Documentation*, 55(3), 249–270.
9. Zuboff, S. (2019). *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. Profile Books.