

Cartography of NEUROTECH network: running projects, networks, societies

Project Acronym	NEUROTECH
Title	<i>Neuromorphic Technology</i>
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Lead Beneficiary	University of Bordeaux, FR
Contributors	CNR, IIT, CEA, UNIMAN, UHEI, IMEC, UZH, HERTS
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Revision history

Date	Editor	Changes to the document
2020-01-06	Sylvain Saïghi	Initial draft
2020-01-27	Consortium	Feedbacks to complete the document
2020-31-01	Michael Schmuker	Proofreading
2020-02-06	Elisa Donati	Proofreading
2020-02-06	Sylvain Saïghi	Final version
2020-01-31	Elisa Donati	Reviewer

Context of production

The following work has been carried out by the partner University of Bordeaux in very strong collaboration with CNR, IIT, CEA, UNIMAN, UHEI, IMEC, UZH, HERTS.

Scope of this deliverable

This deliverable focuses on creating links to European and National projects and larger initiatives that support and develop different aspects of Neuromorphic Computing Technologies. The deliverable includes:

- list of European projects
- list of national projects by country
- list of national societies or networks

Although the deliverable was intended to focus on current projects, we have added past projects (not older than 2 years) to involve as many people as possible within Neurotech community.

Methodology

The list of European projects has been identified via the European Commission's CORDIS platform. The search was made with the keyword neuromorphic.

[https://cordis.europa.eu/search/en?q=contenttype%3D%27project%27%20AND%20\(programme%2Fcode%3D%27H2020%27\)%20AND%20\(%27neuromorphic%27\)&p=6&num=10&srt=Relevance:decreasing](https://cordis.europa.eu/search/en?q=contenttype%3D%27project%27%20AND%20(programme%2Fcode%3D%27H2020%27)%20AND%20(%27neuromorphic%27)&p=6&num=10&srt=Relevance:decreasing)

The project partners have an in-depth knowledge of the NCT activities at the European level. The list was then proofread by the project partners in order to possibly identify some gaps.

The list of national projects has been drawn up following the EU 2018 chist-Era call on Analog computing for AI (<http://www.chistera.eu/sites/chistera.eu/files/CHIST-ERA%20Call%202018%20-%20Call%20Announcement.pdf>).

We have extracted the list of National Agencies involved in this call and tried to identify on their websites the existing NCT projects. The extraction of the list of national NCT projects did not live up to our expectations. There are two main reasons for this: (i) the websites of the national research agencies do not always have an English version and (ii) the list of their funded projects is not always published. The list has been supplemented by the personal knowledge of consortium members.

European NCT projects

Listing by name

Acronym	Project Name	Website	Main contact	
			Last name, First name	email
ADANTE	AI for New Devices And Technologies at the Edge	upcoming	Diaz-Nava, Mario	mario.diaznava@st.com
APROVIS3D	Analog PROcessing Of Bioinspired Vision Sensors For 3D Reconstruction	Upcoming	Martinet, Jean	jean/martinet@univ-lille.fr
BACKUP	Unveiling the relationship between brain connectivity and function by integrated photonics	https://r1.unitn.it/back-up/	Pavesi, Lorenzo	lorenzo.pavesi@unitn.it
BeFerroSynaptic	BEOL technology platform based on ferroelectric synaptic devices for advanced neuromorphic processors	upcoming	Slesazek, Stefan	stefan.slesazek@namlab.com
BIOMODULAR	A Biomimetic Learning Control Scheme for control of Modular Robots	https://bioroboticsdtu.wordpress.com/biomodular/	Tolu, Silvia	stolu@elektro.dtu.dk
BIOMORPHIC	Brain-Inspired Organic Modular Lab-on-a-Chip for Cell Classification	https://research.tue.nl/en/prizes/brain-inspired-lab-on-a-chip	van de Burgt, Yoei	y.b.v.d.burgt@tue.nl
bioSPINspired	Bio-inspired Spin-Torque Computing Architectures	http://julie.grollier.free.fr/STT.htm	Grollier, Julie	julie.grollier@cnsr-thales.fr
BIREHAB	Increasing the robustness and neural integration of bidirectional prostheses for rehabilitation with robust and real time Independent Component Analysis	https://birehab.ch/	Artoni, Fiorenzo	fiorenzo.artoni@epfl.ch
ChipAI	Energy-efficient and high-bandwidth neuromorphic nanophotonic Chips for Artificial Intelligence systems	https://www.chipai.eu/	Romeira, Bruno	bruno.romeira@inl.int
COSMOS	Complex Oscillatory Systems: Modeling and Analysis	https://www.cosmos-itn.eu/	Pikovsky, Arkady	pikovsky@uni-potsdam.de
CResPace	Adaptive Cardio-Respiratory Pacemaker	https://crespace.eu/	Nogaret, Alain	a.r.nogaret@bath.ac.uk
DynapIP	Innovative and ultra-low power neuromorphic unit for advanced signal processing in wearable medical devices	https://aictx.ai/	Qiao, Ning	ning.qiao@ai-ctx.com
ENVISION	Enabling Visual IoT Applications with Advanced Network Coding Algorithms	none	Andreopoulos, Yiannis	i.andreopoulos@ucl.ac.uk
FREEMIND	Ferroelectric RESistors as Emerging Materials for Innovative Neuromorphic Devices	https://researcher.watson.ibm.com/researcher/view.php?person=zurich-LBE	Begon-Lours, Laura	lbe@zurich.ibm.com
Fun-COMP	Functionally scaled computing technology: From novel devices to non-von Neumann architectures and algorithms for a connected intelligent world	https://fun-comp.org/	Wright, David	david.wright@exeter.ac.uk
HBP	Human Brain Project	https://www.humanbrainproject.eu/en/	EPFL Partner	admin@humanbrainproject.eu
HERMES	Hybrid Enhanced Regenerative Medicine Systems	https://www.hermes-fet.eu/welcome	Panuccio, Gabriella	gabriella.panuccio@iit.it
IONOS	An ionic-electronic neuromorphic interface for communication with living systems	https://www.iemn.fr/la-recherche/les-groupes/groupe-ncm/projects	Alibert, Fabien	fabien.alibert@univ-lille.fr

MANIC	Materials for Neuromorphic Circuits	https://etnmanic.eu/	Noheda, Beatriz	b.noheda@rug.nl
MELON	Memristive and multiferroic materials for emergent logic units in nanoelectronics	https://www.u-picardie.fr/recherche/projets-internationaux/melon-588223.kjsp	Lukyanchuk, Igor	lukyanc@ferroix.net
MeM-Scales	Memory technologies with multi-scale time constants for neuromorphic architectures	upcoming	Vianello, Elisa	elisa.vianello@cea.fr
MNEMOSENE	Computation-in-memory architecture based on resistive devices	http://www.mnemosene.eu/	Hamdioui, Said	s.hamdioui@tudelft.nl
NEBULA	Neuro-augmented 112Gbaud CMOS plasmonic transceiver platform for Intra- and Inter- DCI applications	upcoming	Apostolopoulos, Dimitrios	apostold@mail.ntua.gr
NEoteRIC	NEuromorphic Reconfigurable Integrated photonic Circuits as artificial image processor	upcoming		
NEPSpiNN	Neuromorphic EMG Processing with Spiking Neural Networks	https://www.ini.uzh.ch/en/research/groups/ncs/research/Interfaces-to-biological-neural-systems/NEPSpiNN.html	Donati, Elisa	elisa@ini.uzh.ch
NeuRAM3	NEUral computing aRchitectures in Advanced Monolithic 3D-VLSI nano-technologies	http://www.neuram3.eu/	Reita, Carlo	carlo.reita@cea.fr
NEURAMORPH	Dynamics of Amorphous Semiconductors: Intrinsic Nature and Application in Neuromorphic Hardware	https://www.institut-1a.physik.rwth-aachen.de/cms/INSTITUT-1A/Forschung/Dynamik-amorpher-Halbleiter/~iedl/NEURAMORPH/lidx/1/	Salinga, Martin	martin.salinga@physik.rwth-aachen.de
NeuroAgents	Neuromorphic Electronic Agents: from sensory processing to autonomous cognitive behavior	https://www.researchgate.net/project/NeuroAgents-Neuromorphic-electronic-agents-from-sensory-processing-to-autonomous-cognitive-behavior	Indiveri, Giacomo	giacomo@ini.uzh.ch
NeurONN	Two-Dimensional Oscillatory Neural Networks for Energy Efficient Neuromorphic Computing	upcoming		
NeuTouch	NeuTouch: Understanding neural coding of touch as enabling technology for prosthetics and robotics	www.neutouch.eu	Bartolozzi, Chiara	chiara.bartolozzi@iit.it
ORIGENAL	Origami electronics for three dimensional integration of computational devices	https://www.origenal-project.eu/	Neumaier, Daniel	neumaier@amo.de
PerovSiC	Synergistic Resistive Switching of Perovskite and Silicon Carbide materials for Advanced ReRAM micro Devices	http://www.lmgp.grenoble-inp.fr/en/research/perovsic	Pla, Dolors	dolors.pla@grenoble-inp.fr
PHASE-CHANGE SWITCH	Phase-Change Materials and Switches for Enabling Beyond-CMOS Energy Efficient Applications	https://phasechange-switch.org/	Ionescu, Adrian	adrian.ionescu@epfl.ch
PHOTON-NeuroCom	Photonic-assisted Neuromorphic Computing system	http://pure.au.dk/portal/en/projects/photonneurocom(05cf334b-3d49-49ad-b927-75e54b1c5041).html	Moradi, Farshad	moradi@eng.au.dk
PHRESCO	PHotonic REServoir Computing	https://phresco.eu/	Locquet, Jean-Pierre	jeanpierre.locquet@kuleuven.be
PlasmoniAC	Energy- and Size-efficient Ultra-fast Plasmonic Circuits for Neuromorphic Computing Architectures	upcoming		
ProbSens	Probabilistic neuromorphic architecture for real-time Sensor fusion applied to Smart, water quality monitoring systems	https://www.innoradar.eu/innovation/29885	Margarit-Taulé, Josep Maria	josepmaria.margarit@imb-cnm.csic.es

PROJESTOR	PROJECTED MEMRISTOR: A nanoscale device for cognitive computing	http://www.erc-projesticor.eu/	Sebastian, Abu	ase@zurich.ibm.com
Qnets	Open Quantum Neural Networks: from Fundamental Concepts to Implementations with Atoms and Photons	http://markus-mueller.website/research/	Mueller, Markus	markus.mueller@fz-juelich.de
Quromorphic	Neuromorphic Quantum Computing	https://www.quromorphic.eu/2019/10/10/145/	Hartmann, Michael	michael.j.hartmann@fau.de
RESCUE	REsistive-Switch CompUting bEeyond CMOS	http://www.rescue.deib.polimi.it/	Ielmini, Daniele	daniele.ielmini@polimi.it
RESWITCH	Redox-Controlled Resistive Switching in Hybrid Metal-Organic Thin Films towards Neuromorphic Computing	https://app.dimensions.ai/details/grant/grant.8389194	Nisula, Mikko	mikko.nisula@ugent.be
SCHINES	Spatially-Separated Chirality Inspired Networks	http://schines.cnrs.fr/	Gotsmann, Bernd	bgo@zurich.ibm.com
SMALL	Spiking Memristive Architectures for learning to Learn	upcoming	Legenstein, Robert	robert.legenstein@igi.tu-graz.at
STRoNA	Spatio-Temporal Representation on Neuromorphic Architecture	https://www.research.manchester.ac.uk/portal/en/projects/spatiotemporal-representation-on-neuromorphic-architecture-strona--fellow-dr-gh-lim(197e9198-f570-464f-8874-d7845948493c).html	Cangelosi, Angelo	angelo.cangelosi@manchester.ac.uk
SYNCH	A SYNaptically connected brain-silicon Neural Closed-loop Hybrid system	http://www.biomed.unipd.it/en/search/synch-a-synaptically-connected-brain-silicon-neural-closed-loop-hybrid-system-ga-824162/	Vassanelli, Stefano	stefano.vassanelli@unipd.it
TEMPO	Technology and hardware for neuromorphic computing	www.tempo-ecsel.eu	Debacker, Peter	peter.debacker@imec.be
TOPSPIN	Topotronic multi-dimensional spin Hall nano-oscillator networks	http://www.akermanlab.com/	Åkerman, Johan	johan.akerman@physics.gu.se
UNICO	Unsupervised Spiking Neural Networks With Analog Memristive Devices For Edge Computing	upcoming	Drouin, Dominique	dominique.drouin@usherbrooke.ca
ULPEC	Ultra-Low Power Event-Based Camera	http://ulpecproject.eu/	Saighi, Sylvain	sylvain.saighi@u-bordeaux.fr
WATCH	Characterization and Active Control of Weyl Semimetals	upcoming		

Listing by EU calls

EU call	Dates	Acronym
ECSEL-2018-2-RIA - H2020-ECSEL-2018-2-RIA	From 2019-05-01 to 2022-04-30	TEMPO
ECSEL-2019-2-RIA - H2020-ECSEL-2019-2-RIA	From 2020-02-01 to	ADANTE
EIC-SMEInst-2018-2020 - SME instrument	From 2019-06-01 to 2019-09-30	DynapIP
Eranet CHIST-ERA 2019	From 2019-12-01 to 2022-11-30	APROVIS3D
Eranet CHIST-ERA 2019	From 2019-12-01 to 2022-11-30	UNICO
Eranet CHIST-ERA 2019	From 2020-02-01 to 2023-01-31	SMALL
ERC-2014-COG - ERC Consolidator Grant	From 2015-08-01 to 2020-07-31	RESCUE
ERC-2014-STG - ERC Starting Grant	From 2015-10-01 to 2021-09-30	NEURAMORPH

ERC-2015-COG - ERC Consolidator Grant	From 2016-07-01 to 2021-06-30	PROJESTOR
ERC-2015-COG - ERC Consolidator Grant	From 2016-09-01 to 2021-08-31	bioSPINspired
ERC-2016-COG - ERC Consolidator Grant	From 2017-09-01 to 2022-08-31	NeuroAgents
ERC-2017-ADG - ERC Advanced Grant	From 2018-11-01 to 2023-10-31	BACKUP
ERC-2017-COG - ERC Consolidator Grant	From 2018-11-01 to 2023-10-31	IONOS
ERC-2018-ADG - ERC Advanced Grant	From 2019-09-01 to 2024-08-31	TOPSPIN
ERC-2018-STG - ERC Starting Grant	From 2019-01-01 to 2023-12-31	BIOMORPHIC
ERC-2018-STG - ERC Starting Grant	From 2019-10-01 to 2024-09-30	Qnets
FETOPEN-01-2016-2017 - FET-Open research and innovation actions	From 2017-01-01 to 2020-06-30	PHASE-CHANGE SWITCH
FETOPEN-01-2018-2019-2020 - FET-Open Challenging Current Thinking	From 2019-01-01 to 2022-12-31	SCHINES
FETOPEN-01-2018-2019-2020 - FET-Open Challenging Current Thinking	From 2019-03-01 to 2022-02-28	ChipAI
FETOPEN-01-2018-2019-2020 - FET-Open Challenging Current Thinking	From 2019-06-01 to 2022-05-31	Quromorphic
FETOPEN-01-2018-2019-2020 - FET-Open Challenging Current Thinking	From 2019-10-01 to 2023-09-30	ORIGENAL
FETPROACT-01-2016 - FET Proactive: emerging themes and communities	From 2017-01-01 to 2021-12-31	CResPace
FETPROACT-01-2018 - FET Proactive: emerging paradigms and communities	From 2019-01-01 to 2023-12-31	HERMES
FETPROACT-01-2018 - FET Proactive: emerging paradigms and communities	From 2019-01-01 to 2022-12-31	SYNCH
ICT-03-2016 - SSI - Smart System Integration	From 2017-01-01 to 2020-12-31	ULPEC
ICT-05-2019 - Application driven Photonics components	From 2020-01-01 to 2022-12-31	NEBULA
ICT-06-2019 - Unconventional Nanoelectronics	From 2020-01-01 to 2022-12-31	NeurONN
ICT-06-2019 - Unconventional Nanoelectronics	From 2020-01-01 to 2022-12-31	BeFerroSynaptic
ICT-06-2019 - Unconventional Nanoelectronics	From 2020-01-01 to	NEoteRIC
ICT-06-2019 - Unconventional Nanoelectronics	From 2020-01-01 to	PlasmoniAC
ICT-06-2019 - Unconventional Nanoelectronics	From 2020-01-01 to	MeM-Scales
ICT-25-2015 - Generic micro- and nano-electronic technologies	From 2015-11-01 to 2019-10-31	PHRESCO
ICT-25-2015 - Generic micro- and nano-electronic technologies	From 2016-01-01 to 2019-06-30	NeuRAM3
ICT-31-2017 - Micro- and nanoelectronics technologies	From 2018-01-01 to 2020-12-31	MNEMOSENE
ICT-31-2017 - Micro- and nanoelectronics technologies	From 2018-03-01 to 2022-02-28	Fun-COMP
MSCA-IF-2015-EF - Marie Skłodowska-Curie Individual Fellowships	From 2017-02-01 to 2019-01-31	BIOMODULAR
MSCA-IF-2016 - Individual Fellowships	From 2017-05-01 to 2019-04-30	BIREHAB
MSCA-IF-2016 - Individual Fellowships	From 2017-07-01 to 2019-10-20	PerovSiC
MSCA-IF-2016 - Individual Fellowships	From 2017-08-01 to 2019-07-31	PHOTON-NeuroCom
MSCA-IF-2016 - Individual Fellowships	From 2017-09-01 to 2019-08-31	NEPSpiNN
MSCA-IF-2016 - Individual Fellowships	From 2017-09-01 to 2019-08-31	ProbSenS
MSCA-IF-2016 - Individual Fellowships	From 2018-01-15 to 2020-01-14	ENVISION
MSCA-IF-2017 - Individual Fellowships	From 2018-08-01 to 2020-07-31	STRoNA
MSCA-IF-2018 - Individual Fellowships	From 2019-04-01 to 2021-03-31	RESWITCH
MSCA-IF-2018 - Individual Fellowships	From 2019-06-01 to 2021-05-31	FREEMIND
MSCA-IF-2018 - Individual Fellowships	From 2020-09-01 to 2022-08-31	WATCH
MSCA-ITN-2014-EJD - Innovative Training Networks (ITN-EJD)	From 2015-01-01 to 2019-08-31	COSMOS
MSCA-ITN-2018 - Innovative Training Networks	From 2019-03-01 to 2023-02-28	NeuTouch
MSCA-ITN-2019 - Innovative Training Networks	From 2019-11-01 to 2023-10-31	MANIC
MSCA-RISE-2019 - Research and Innovation Staff Exchange	From 2020-04-01 to 2024-03-31	MELON
SGA-FETFLAG-HBP-2017 - HBP FET Flagship core project	From 2013-04-01 to	HBP

Analysis by country

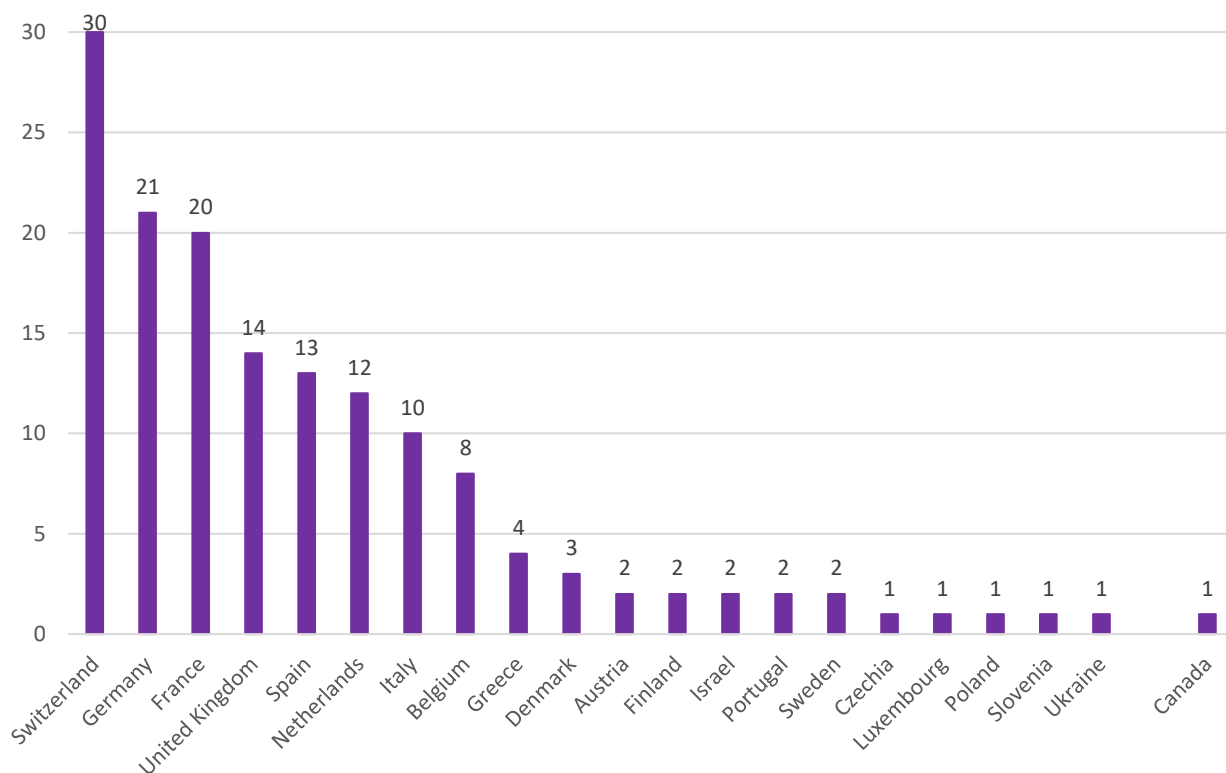


FIGURE 1: NUMBER OF NCT PROJECTS PER COUNTRY. 46 PROJECTS WERE IDENTIFIED. SEVERAL PARTNERS FROM THE SAME COUNTRY MAY BE INVOLVED IN THE SAME PROJECT.

National NCT projects

National NCT projects identified

Country Research Agency	Projects			
	Acronym	Project name	Coordinator	email
Austria Austrian Science Fund		Combinatorial memristive materials for sensor applications	Marmade, Andrei Ionut	andrei.mardare@jku.at
		Spiking Memristive Architectures for Learning to Learn	Legenstein, Robert	robert.legenstein@igi.tugraz.at
		Novel computational paradigms for memristive architectures	Legenstein, Robert	robert.legenstein@igi.tugraz.at
Finland Academy Of Finland		Optoelectronic Synapses for Artificial Neuro Networks	Tan, Hongwei	hongwei.tan@aalto.fi
	NeuMorBrain	Neuromorphic Systems Emulating Brain-Like Learning and Self-Repair	Linne, Marja-Leena	marja-leena.linne@tuni.fi
		Memristors based on electronic scale switching in low bandwidth manganites	Paturi, Petriina	petriina.paturi@utu.fi
France French National Research Agency	MIRA	Memristive High Speed Neuromorphic Visual Processing	Saïghi, Sylvain	sylvain.saighi@u-bordeaux.fr
	Neuronic	Réseau Neuronal Binaire à base d'architecture hybride de mémoires intégrant des fonctions de calcul (CMOS/RRAM) pour la fusion de capteurs	Klein, Jacques-Olivier	jacques-olivier.klein@c2n.upsaclay.fr
	NEMESIS	NEuroMorphic hardwarE for Smart vision Sensor	Duranton, Marc	marc.duranton@cea.fr
	Spinapse	Interlinked OptoElectronic Spinapses	Bowen, Martin	martin.bowen@ipcms.unistra.fr
	MangaSwitch	Structure–property relations for manganite memristive devices	Lopez, Mónica	monica.burriel@grenoble-inp.fr
	NANTISTA	Neuromorphic Architecture for Nuclear Threat Identification for Security Applications	Thévenin, Mathieu	mathieu.thevenin@cea.fr
	SOMA	Self-Organizing Machine Architecture	Miramond, Benoît	benoit.miramond@unice.fr
	Spin-IA	Spintronique IA	Mizrahi, Alice	alice.mizrahi@thalesgroup.com
	EMINENT	Test et fiabilité des réseaux de neurones impulsionnels basées sur des mémoires émergentes	Vatajelu, Ioana	ioana.vatajelu@univ-grenoble-alpes.fr
	Anaconda	Calcul Analogique avec des Neurones Impulsionnels Photoniques	Barbay, Sylvain	sylvain.barbey@c2n.upsaclay.fr
	LEOPAR	Unité de pré-traitement pour systèmes intégrés à faible énergie	Larras, Benoît	benoit.larras@yncrea.fr
	Bio-Ice	Bio-inspired computation based on artificial spin Ice architectures	Lacour, Daniel	daniel.lacour@univ-lorraine.fr

Netherlands The Netherlands Organisation For Scientific Research	No NCT projects founded		https://www.nwo.nl/en/research-and-results/research-projects?q=	
Portugal Foundation For Science And Technology	MEMBRAINN	Memristor based adaptive neural networks	João Oliveira Ventura	joventur@fc.up.pt
		Hybrid Neuron Memristor Adaptive Platform	João Oliveira Ventura	joventur@fc.up.pt
Slovakia Slovak Academy Of Sciences	No NCT projects founded		https://www.sav.sk/index.php?lang=en&doc=activity-proj-nat	
Sweden Swedish Research Council	No NCT projects founded		https://www.vr.se/english.html	

Listing of countries where information is missing

Country	Research Agency	Web site
Austria	Austrian Research Promotion Agency	https://www.ffg.at/en
Belgium	Fund For Scientific Research	https://www.frs-fnrs.be/en/
Belgium	Research Foundation - Flanders	https://www.fwo.be/en/
Bulgaria	Bulgarian National Science Fund	http://fni.bg/
Czech Republic	Technology Agency Of The Czech Republic	https://www.tacr.cz/en/homepage/
Cyprus		
Estonia	Estonian Research Council	https://www.etag.ee/en/estonian-research-council/
Germany	German Research Foundation	https://www.dfg.de/en/index.jsp
Germany	Federal Ministry for Education and Research	https://www.bmbf.de/en/index.html
Germany	Helmholtz Association	https://www.helmholtz.de/en/
Greece	General Secretariat For Research And Technology	http://www.gsrt.gr/central.aspx?sid=11914281108913231488743
Ireland	Irish Research Council	http://research.ie/
Italy	Italian Ministry Of Education, University And Research	https://www.miur.gov.it/
Latvia	State Education Development Agency	http://viaa.gov.lv/eng/
Lithuania	Research Council Of Lithuania	https://www.lmt.lt/en
Poland	Polish National Centre For Research And Development	https://www.ncbr.gov.pl/en/
Poland	National Science Centre	https://www.ncn.gov.pl/finansowanie-nauki/konkursy/wyniki?language=en
Romania	Executive Agency For Higher Education, Research, Development And Innovation Funding	https://uefiscdi.gov.ro/

Spain	State Research Agency	http://www.ciencia.gob.es/
Spain	Innovation And Development Agency Of Andalusia	https://www.juntadeandalucia.es/organismos/economiaconocimientoempresasyuniversidad/idea.html
Sweden	Swedish Research Council	https://www.vr.se/english.html
Switzerland	Swiss National Science Foundation	http://www.snf.ch/en/Pages/default.aspx
Turkey	Scientific And Technological Research Council Of Turkey	https://tubitak.gov.tr/en
United-Kingdom	Engineering And Physical Sciences Research Council	https://epsrc.ukri.org/

NCT societies and networks

At the European level, the community had started to be structured since 2007 thanks to the CapoCaccia Workshop toward Neuromorphic Intelligence (<https://ccnw.iniforum.ch/en/>). The goal of this annual workshop is to understand the principles of biological intelligence, and to implement these in neuromorphic technologies, for the good all mankind. Even though the program committee changes regularly, the workshop is mainly led by Giacomo Indiveri giacomo@ini.uzh.ch

At the national level, the structuring of scientific communities is not encouraged in the same way in each country. The only community identified is in France thanks to the BioComp Research Network (Groupement de Recherche BioComp alias GDR BioComp). The goal of the GDR BIOCOMP (<https://gdr-biocomp.fr/en/>) is to facilitate interdisciplinary exchanges around a common goal: the realization of bio-inspired hardware systems. The board of this Research Network is composed of Sylvain Saïghi (Director) sylvain.saighi@u-bordeaux.fr; Benoît Miramond (Deputy Head) benoit.miramond@unice.fr; Julie Grollier (Deputy Head) julie.grollier@cnsr-thales.fr; Fabien Alibart fabien.alibart@univ-lille.fr; Ryad Benosman ryad.benosman@upmc.fr; Andrew Davison andrew.davison@unic.cnrs-gif.fr; Bernard Girau bernard.girau@loria.fr; Timothée Masquelier timothee.masquelier@cnsr.fr; Martial Mermillod martial.mermillod@univ-grenoble-alpes.fr; Damien Querlioz damien.querlioz@u-psud.fr; Elena Ioana Vtajelu ioana.vatajelu@univ-grenoble-alpes.fr

Conclusion and next steps

The cartography at European and national levels has identified several projects that we did not yet have on our radars. The email addresses of the project leaders have been added to NeuroTech's mailing list. The Neurotech consortium will continue the scientific monitoring of NCT activities by following recently funded projects and monitoring the results of future EU project calls.

The cartography of the national projects remains delicate at the moment. The websites of the national research agencies do not always have an English version and the list of their funded projects is not always published. It would be desirable that national research agencies in the European area offer an English version of their websites. This recommendation for a stronger European policy concerns not only NeuroTech but the European research landscape in general.

We can notice a strong disparity between the countries invested in European NCT projects. Seven countries (Switzerland, Germany, France, United Kingdom, Italy, Netherlands, Spain and Belgium) are strongly involved. This might not be enough to create a real emulation at European level for a major development of NCTs. We therefore suggest to take measures to increase participation in NCT initiatives in EU countries where it is currently underrepresented. If the European Commission wants NCTs to be a research field in their own right in the framework of FP9 Horizon Europe, consideration should be given to encouraging national research agencies to launch NCT programmes in order to build up new research teams. The communication of these new projects to the scientific community and the general public will make it possible to better identify these new stakeholders and ultimately enable them to increase Europe's capacity for innovation in this promising research field.