HORIZON 2020

Multimedia Authoring and Management using your Eyes and Mind

Results

Project Information

MAMEM

Grant agreement ID: 644780

Project website [↗]

DOI
10.3030/644780 [↗]

Project closed

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20 April 2015

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1 May 2015

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31 July 2018

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€ 2 704 375,00

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€ 2 704 375,00

Coordinated by
ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS
🇬🇷 Greece

CORDIS provides links to public deliverables and publications of HORIZON projects.

Links to deliverables and publications from FP7 projects, as well as links to some specific result types such as dataset and software, are dynamically retrieved from OpenAIRE [↗].

Deliverables

Other (6) ⌄

[D3.2 Multi-modal interaction with meso and high level control paradigms](link)

Prototypes of multi-modal algorithms for meso-level and high-level control combining eye-tracking, EEG and bio-measurements. These algorithms will also become part of the Interaction SDK.

[D2.3 - Final integration and optimization of multi-modal sensors](link)

Delivery of the final version of MAMEM's sensor installation that compared to D2.2 will be further fine-tuned and adapted to the user's specific disabilities, incorporating the results of the first pilot studies conducted in WP6.

[D4.3 – Initial implementation of MAMEM's middleware and interaction SDK](link)

Delivery of the software (together with its documentation) implementing the first version of MAMEM's middleware and interaction SDK that incorporates the first-phase results of WP2 and WP3.

[D2.2 - Initial integration and optimization of multi-modal sensors](link)

Delivery of the initial version of MAMEM's sensor installation, integrating and optimizing the three sensor modalities (eye-tracker, EEG recording system and bio-measurements).

[D4.4 – Final implementation of MAMEM's middleware and interaction SDK](link)

Delivery of the software (together with its documentation) implementing the final version of MAMEM's middleware and interaction SDK that incorporates the second-phase results of WP2 and WP3. The technical validation and verification tests of the updated algorithms are also included in this deliverable.

[D3.3 Final implementation for the control paradigms of multi-modal interaction](link)

Delivery of the final version of the MAMEM's algorithms for multi-modal interaction that compared to D3.2 will also incorporate the results of the first-stage experiments conducted in WP6.

Demonstrators, pilots, prototypes (2) ⌄

[D5.2 – Initial design and implementation of the prototype interface applications](link)

This deliverable will incorporate the mock-ups for the design, as well as an initial implementation for the prototype interface applications that will be used during the pilot studies. The prototypes of interface applications will be evaluated on effectiveness (lab studies in changing relevant user behavior and/ or attitudes). This deliverable will also encompass a description of the training cycles (of interface use) necessary for optimizing user acceptation and behaviour change.

[D5.3 – Final design and implementation of the prototype interface applications](#) ↗

This deliverable will incorporate the final implementation of the prototype interface applications for managing and authoring multimedia content through the user's eyes and mind. Compared to D5.2 the emphasis will be more on the development side and the integration with existing tools for managing, creating and sharing multimedia content. Moreover, the results of the first stage pilot trials will be also taken into consideration for improving the interface design.

Websites, patent fillings, videos etc. (1) ⌄

[D8.1 – Project Communication Kit](#) ↗

Initial project publicity material consisting of the project web-site, poster, leaflet and factsheet, as well as the project's social media accounts (i.e. Twitter, LinkedIn and Facebook).

Open Research Data Pilot (1) ⌄

[D1.4 - Data management plan](#) ↗

This deliverable will determine the strategy by which the research data generated by the project will be made open for maximizing their re-use.

Documents, reports (11) ⌄

[D5.1b Update of D5.1 based on the revised requirements of the first-phase pilot trials](#) ↗

This is an update of the D5.1 based on the revised requirements that will result from the first-phase pilot trials.

[D5.1 – Report on persuasive design principles, user models and profiles](#) ↗

This deliverable will incorporate a description of the most effective set of principles to derive a specific motivator for the behaviour or attitude change targets, incorporating social inclusion, increasing trust, and diminishing reactance effects. It will also describe MAMEM's end-users on relevant characteristics as (dis-)abilities, interaction behavior, emotions, intentions, social abilities, extend to which training is needed, and social network, and sensitivity to persuasive strategies. The profiles for the different personas will be also part of this deliverable.

[D6.2: Definition of pilot trials with the participation of patients](#) ↗

The report will describe detailed methods for conducting pilot studies with the participation of patients.

[D7.1 – Methodology for measuring social integration](#) ↗

This deliverable will report on the results of our literature review about the existing methodologies for quantifying and monitoring social integration. Moreover, by employing the selected methodology for the cases of MAMEM this deliverable will also incorporate the complete portfolio of indicators for assessing the achieved impact on social integration.

[D8.5 – Exploitation status report and updated plan](#) ↗

Report summarizing the status of the exploitation activities, the resulting paths for generating revenue and the activities that will be carried out to make the project results sustainable after its completion.

[D4.1 Report on the middleware architecture and technical requirements](#) ↗

Description of the designed architecture and specifications including the technologies, the programming environment and the range of functionalities that will be adopted in the implementation of MAMEM's middleware and SDK.

[D6.1: Clinical requirements for the MAMEM platform for each of the patient cohort](#) ↗

The report will describe: (1) The special physical requirements for actual wearing and operation of the platform for each cohort of subjects; (2) Definitions of user interface software requirements, such as menus, screen buttons etc. (3) analyses of questionnaires and focus groups. This report will also include the ethical approvals obtained from the corresponding committees in Greece and Israel.

[D6.5: Final report on pilot trials with the participation of patients](#) ↗

The report will describe: (1) Three sets of comprehensive results and analysis of experiments conducted in three clinical sites (2) Recommendations on future clinical use of the platform in terms of additional cohorts of subjects, additional disabilities and additional targets of use.

[D7.3 – Study about the connection of natural interfaces and multimedia with the social integration of people with disabilities](#) ↗

This deliverable will accumulate and critically analyze the evidence that will be collected during the course of the project. Analysis will be performed with respect to bringing disabled people back to the society by means of managing and authoring multimedia content through natural human-computer interfaces.

[D6.4: Interim report on pilot experiments based on half the subjects, including updated clinical requirements and definitions of clinical trials](#) ↗

The report will describe: (1) Three sets of results and analyses of experiments conducted in three clinical sites (2) Recommendations for modifications of

methods for the second set of pilot studies with the participation of patients (3) recommendations for trials related to WP7 (Monitoring social inclusion).

D8.4 – Impact assessment and updated dissemination plan [↗]
Report summarizing the project dissemination activities, assessing their impact and suggesting potential corrections to the adopted dissemination strategy.

Publications

Condérence proceedings (29) ∨

Assessing the usability of gaze-adapted Interface against conventional eye-based input emulation [↗]
Author(s): Kumar, Chandan; Menges, Raphael; Staab, Steffen
Published in: Issue 1, 2017
Publisher: IEEE CBMS
DOI: 10.5281/zenodo.583405

Chromium based Framework to include Gaze Interaction in Web Browser [↗]
Author(s): Kumar, Chandan; Menges, Raphael; Müller, Daniel; Staab, Steffen
Published in: Issue 1, 2017
Publisher: Proceedings of the 26th International Conference Companion on World Wide Web
DOI: 10.5281/zenodo.583340

Using tailoring to increase the effectiveness of a persuasive game-based training for novel technologies [↗]
Author(s): Fountoukidou, S.; Ham, J.R.C.; Midden, C.J.H.; Matzat, U.
Published in: CEUR Workshop Proceedings, 1833, 91 - 96, Issue 1, 2017
Publisher: CEUR
DOI: 10.5281/zenodo.583436

Analyzing the Impact of Cognitive Load in Evaluating Gaze-Based Typing [↗]
Author(s): Korok Sengupta, Jun Sun, Raphael Menges, Chandan Kumar, Steffen Staab
Published in: 2017 IEEE 30th International Symposium on Computer-Based Medical Systems (CBMS), 2017, Page(s) 787-792, ISBN 978-1-5386-1710-6
Publisher: IEEE
DOI: 10.1109/CBMS.2017.134

Enhanced representation of web pages for usability analysis with eye tracking [↗]

Author(s): Raphael Menges, Hanadi Tamimi, Chandan Kumar, Tina Walber, Christoph Schaefer, Steffen Staab
Published in: Proceedings of the 2018 ACM Symposium on Eye Tracking Research & Applications - ETRA '18, 2018, Page(s) 1-9, ISBN 9781-450357067
Publisher: ACM Press
DOI: 10.1145/3204493.3204535

eyeGUI - A Novel Framework for Eye-Controlled User Interfaces ⧉
Author(s): Raphael Menges, Chandan Kumar, Korok Sengupta, Steffen Staab
Published in: Proceedings of the 9th Nordic Conference on Human-Computer Interaction - NordiCHI '16, 2016, Page(s) 1-6, ISBN 9781-450347631
Publisher: ACM Press
DOI: 10.1145/2971485.2996756

An Error Aware SSVEP-based BCI ⧉
Author(s): Kalaganis, Fotis; Chatzilari, Elisavet; Georgiadis, Kostas; Nikolopoulos, Spiros; Laskaris, Nikos; Kompatsiaris, Yiannis
Published in: IEEE 30th International Symposium on Computer-Based Medical Systems (CBMS), Issue 2, 2017, ISSN 2372-9198
Publisher: IEEE
DOI: 10.5281/zenodo.583386

GazeTheKey - Interactive Keys to Integrate Word Predictions for Gaze-based Text Entry ⧉
Author(s): Korok Sengupta, Raphael Menges, Chandan Kumar, Steffen Staab
Published in: Proceedings of the 22nd International Conference on Intelligent User Interfaces Companion - IUI '17 Companion, 2017, Page(s) 121-124, ISBN 9781-450348935
Publisher: ACM Press
DOI: 10.1145/3030024.3038259

Detection of Mental Task Related Activity in NIRS-BCI systems Using Dirichlet Energy over Graphs ⧉
Author(s): Petrantonakis, Panagiotis; Kompatsiaris, Ioannis
Published in: 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'18, Issue 1, 2018
Publisher: IEEE
DOI: 10.5281/zenodo.1294001

Usability Heuristics for Eye-controlled User Interface ⧉
Author(s): Sengupta, Korok; Kumar, Chandan; Staab, Steffen
Published in: COGAIN Symposium: Communication by Gaze Interaction, Issue 2, 2017
Publisher: COGAIN Symposium
DOI: 10.5281/zenodo.820917

[Hands-Free Web Browsing: Enriching the User Experience with Gaze and Voice Modality](#) ↗
Author(s): Sengupta, Korok; Ke, Min; Menges, Raphael; Kumar, Chandan; Staab, Steffen
Published in: ACM Symposium on Eye Tracking Research and Applications (ETRA 18), Issue 1, 2018
Publisher: ACM
DOI: 10.5281/zenodo.1293980

[Steady state visual evoked potential detection using Subclass Marginal Fisher Analysis](#) ↗
Author(s): Anastasios Maronidis, Vangelis P. Oikonomou, Spiros Nikolopoulos, Ioannis Kompatsiaris
Published in: 2017 8th International IEEE/EMBS Conference on Neural Engineering (NER), 2017, Page(s) 37-41, ISBN 978-1-5090-4603-4
Publisher: IEEE
DOI: 10.1109/NER.2017.8008286

[Sparse Kernel Machines for motor imagery EEG classification](#) ↗
Author(s): Oikonomou, Vangelis; Nikolopoulos, Spiros; Petrantonakis, Panagiotis; Kompatsiarios, Ioannis
Published in: 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'18), Issue 1, 2018
Publisher: IEEE
DOI: 10.5281/zenodo.1294000

[Sparse Bayesian Learning for Multiclass Classification with application to SSVEP- BCI](#) ↗
Author(s): Oikonomou, Vangelis P.; Liaros, Giorgos; Nikolopoulos, Spiros; Kompatsiaris, Ioannis
Published in: 8th International IEEE/EMBS Conference on Neural Engineering (NER), Issue 2, 2017, ISSN 1948-3554
Publisher: IEEE
DOI: 10.5281/zenodo.583431

[A comparison study on EEG signal processing techniques using motor imagery EEG data](#) ↗
Author(s): Oikonomou, Vangelis P.; Georgiadis, Kostas; Liaros, George; Nikolopoulos, Spiros; Kompatsiaris, Ioannis
Published in: IEEE 30th International Symposium on Computer-Based Medical Systems (CBMS), Issue 2, 2017, ISSN 2372-9198
Publisher: IEEE
DOI: 10.5281/zenodo.583387

[GazeTheWeb - A Gaze-Controlled Web Browser](#) ↗
Author(s): Raphael Menges, Chandan Kumar, Daniel Müller, Korok Sengupta
Published in: Proceedings of the 14th Web for All Conference on The Future of Accessible Work - W4A '17, 2017, Page(s) 1-2, ISBN 9781-450349000

Sparse Bayesian Learning for subject independent classification with application to SSVEP-BCI [↗]
Author(s): Vangelis P. Oikonomou, Anastasios Maronidis, George Liaros, Spiros Nikolopoulos, Ioannis Kompatsiaris

Combining the Benefits of CCA and SVMs for SSVEP-based BCIs in Real-world Conditions [↗]
Author(s): Elisavet Chatzilari, Georgios Liarios, Kostas Georgiadis, Spiros Nikolopoulos, Yiannis Kompatsiaris

A Collaborative Representation Approach to Detecting Error-Related Potentials in SSVEP-BCIs [↗]
Author(s): Fotis P. Kalaganis, Elisavet Chatzilari, Spiros Nikolopoulos, Nikos A. Laskaris, Yiannis Kompatsiaris

Computer uses and difficulties in Parkinson's disease
Author(s): Z. Katsarou, M. Plotnik, G. Zeilig, A. Gottlieb, R. Kizony, S. Bostantjopoulou

Computer use aspects in patients with motor disabilities
Author(s): Bostantjopoulou, Sevasti; Plotnick, Meir; Zeilig, Gabi; Gottlieb, Amihai; Kizony, Amihai; Chlomissiou, Sissy; Nichogiannopoulou, Ariana; Katsarou, Zoe

MAMEM – A novel computer brain interface platform for enhancing social interaction of people with disabilities – Clinical requirements resulting from focus groups and literature survey
Author(s): Zeilig, Gabi; Gottlieb, Amihai; Kizony, Rachel; Katsarou, Zoe; Bostantzopoulou, Sevasti; Nichgiannopoulou, Ariana; Chlomissiou, Sissy; Plotnik, Meir
Published in: 20th European Congress of Physical and Rehabilitation Medicine, 2016
Publisher: 20th European Congress of Physical and Rehabilitation Medicine

Parkinson's disease impact on computer use. A patients' and caregivers perspective
Author(s): Zoe Katsarou, Gabi Zeilig, Meir Plotnik, Amihai Gotlieb, Rachael Kizony, Sevasti Bostantjopoulou-Kambouroglou
Published in: The American Academy of Neurology 69th Annual Meeting, 2017
Publisher: Neurology

Clinical Research Example – MAMEM – Multimedia Authoring and Management Using Your Eyes and Mind
Author(s): Dr. Meir PLOTNIK, Mr. Amihai GOTTLIEB, Dr. Rachel KIZONY, Dr. Zoe KATSAROU, Dr. Sevasti BOSTANTZOPOULOU, Ms. Ariana NICHOGIANNOPOULOU, Ms. Sissy CHLOMISSIOU, Dr. Gabi ZEILIG,
Published in: Rehab science and technology update (RSTU), 2016
Publisher: Rehab science and technology update (RSTU)

The importance of using computers in populations with Parkinson's disease and spinal cord injury: a patients' and caregivers' perspective
Author(s): Meir Plotnik, Zoe Katsarou, Amihai Gotlieb, Adam Grinberg, Rachel Kizony, Gabi Zeilig, Sevasti Bostantjopoulou-Kambouroglou
Published in: SfN's 47th annual meeting in Neuroscience, 2017
Publisher: SfN's 47th annual meeting in Neuroscience

[Finding Kairos: The Influence of Context-Based Timing on Compliance with Well-Being Triggers](#) ⬈
Author(s): Jaap Ham, Jef van Schendel, Saskia Koldijk, Evangelia Demerouti
Published in: Symbiotic 2016, 2017, Page(s) 89-101
Publisher: Springer International Publishing
DOI: 10.1007/978-3-319-57753-1_8

Using personalized persuasive strategies to increase acceptance and use of HCI technology
Author(s): Sofia Fountoukidou, Jaap Ham, Peter Ruijten, and Uwe Matzat
Published in: Adjunct Proceedings of the 11th International Conference on Persuasive Technology, 2016
Publisher: Adjunct Proceedings of the 11th International Conference on Persuasive Technology

[Using an Artificial Agent as a Behavior Model to Promote Assistive Technology Acceptance](#) ⬈

Schau genau! A Gaze-Controlled 3D Game for Entertainment and Education

Peer reviewed articles (9) ⌄

Ambiguous Agents: The Influence of Consistency of an Artificial Agent's Social Cues on Emotion Recognition, Recall, and Persuasiveness ↗

EEG-Based Brain–Computer Interfaces for Communication and Rehabilitation of People with Motor Impairment: A Novel Approach of the 21st Century ↗

A multimodal dataset for authoring and editing multimedia content: The MAMEM project ↗

Eye-Controlled Interfaces for Multimedia Interaction ⬀

The influence of social cues in persuasive social robots on psychological reactance and compliance ⬀

Discriminative codewaves: a symbolic dynamics approach to SSVEP recognition for asynchronous BCI ⬀

Effects of Robot Facial Characteristics and Gender in Persuasive Human-Robot Interaction ⬀

An error-aware gaze-based keyboard by means of a hybrid BCI system ⬀

Single-Trial NIRS Data Classification for Brain–Computer Interfaces Using Graph Signal Processing ⬀

Other (2) ⌄

Comparative evaluation of state-of-the-art algorithms for SSVEP-based BCIs
Author(s): Oikonomou, Vangelis P.; Liaros, Georgios; Georgiadis, Kostantinos; Chatzilari, Elisavet; Adam, Katerina; Nikolopoulos, Spiros; Kompatsiaris, Ioannis
Published in: Issue 1, 2016
Publisher: arxiv

[The MAMEM Project - A dataset for multimodal human-computer interaction using biosignals and eye tracking information](#) 🔗
Author(s): Nikolopoulos,Spiros; Georgiadis, Kostas; Kalaganis, Fotis; Liaros, Georgios; Lazarou, Ioulietta; Adam, Katerina; Papazoglou-Chalikias Anastasios; Chatzilari, Elisavet; Oikonomou, P. Vangelis; Petrantonakis, C. Panagiotis; Kompatsiaris, I.; Kumar, Chandan; Menges, Raphael; Staab, Steffen; Müller, Daniel; Sengupta, Korok; Bostantjopoulou, Sevasti; Katsarou, Zoe; Zeilig, Gabi; Plotnin, Meir; Gottlie
Published in: 2017
Publisher: zenodo
DOI: 10.5281/zenodo.834154

Datasets

Datasets via OpenAIRE (5) 🔵 OpenAIRE ⌄

[Error Related Potentials from Gaze-Based Typesetting](#) 🔗
Author(s): Kalaganis, Fotis; Chatzilari, Elisavet; Nikolopoulos, Spiros; Kompatsiaris, Ioannis; Laskaris, Nikos
Published in: Figshare

[MAMEM EEG SSVEP Dataset I (256 channels, 11 subjects, 5 frequencies presented in isolation)](#) 🔗
Author(s): Georgiadis, Kostas; Oikonomou, Vangelis; Liaros, Georgios; Chatzilari, Elisavet; Adam, Aikaterini; Nikolopoulos, Spiros
Published in: figshare

[MAMEM Phase I Dataset - A dataset for multimodal human-computer interaction using biosignals and eye tracking information](#)

Author(s): Nikolopoulos, Spiros; Georgiadis, Kostas; Kalaganis, Fotis; Liargos, George; Lazarou, Ioulietta; Adam, Aikaterini; Papazoglou-Chalikias, Anastasios; Chatzilari, Elisavet; Oikonomou, Vangelis; Petrantonakis, Panagiotis; Kompatsiaris, Ioannis; Kumar, Chandan; Menges, Raphael; Staab, Steffen; Müller, Daniel; Sengupta, Korok; Bonstanjopoulou, Sevasti; Katsarou, Zoe; Zeilig, Gabi; Plotnik, Meir; Gottlieb, Amihai; Fountoukidou, Sofia; Ham, Jaap; Athansiou, Dimitrios; Marakaki, Agnes; Comanducci, Dario; Sabatini, Edoardo; Nistico, Walter; Plank, Markus
Published in: figshare

[MAMEM EEG SSVEP Dataset II (256 channels, 11 subjects, 5 frequencies presented simultaneously)](#)

Author(s): Oikonomou, Vangelis; Liaros, George; Georgiadis, Kostantinos; Nikolopoulos, Spiros; Chatzilari, Elisavet; Adam, Aikaterini; Kompatsiaris, Ioannis
Published in: figshare

[MAMEM EEG SSVEP Dataset III (14 channels, 11 subjects, 5 frequencies presented simultaneously)](#)

Author(s): Liaros, George; Georgiadis, Konstantinos; Oikonomou, Vangelis; Chatzilari, Elisavet; Adam, Aikaterini; Nikolopoulos, Spiros; Kompatsiaris, Ioannis
Published in: figshare

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Permalink: https://cordis.europa.eu/project/id/644780/results

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