Securing Data in Mesopotamia: New technologies for secured cuneiform texts

MONDAY 14 March 2022

Introduction
10:00 Registration and coffee
10:30 Welcome by the Lorentz Center
10:45 Introduction by the organizers: aims of the workshop

Inside the clay tablet: see-through techniques
Chair: Ngan-Tillard
Moderators: Hameeuw, Kertai, Anderson

11:15 Keynote 1: Imaging the inside of clay tablets: the state so far (Mynářová and Vavřík)
11:45 Keynote 2: Ancient techniques of clay tablet manufacture: where we are now, and where we’re going next (Taylor)
12:15 Lunch and time for participants networking
14:00 Group activity
   1: Clay envelopes: function, format, history (De Boer)
   2: Envelopes and soft wrappings of clay tablets (Michel)
15:00 Break-out session
   Q1: What new questions can we ask about clay preparation and tablet manufacture thanks to see-through techniques?
   Q2: What new questions can we ask about the use of clay envelopes in ancient Mesopotamia thanks to see-through techniques?
   Q3: What else would we like to see but cannot yet see with these CT techniques?
   Q4: How do enveloping, clay preparation, tablet manufacture, breaking etc. relate to the problematic of securing data?
16:00 Tea or coffee
16:30 Reports of break-out session, group discussion
17:00 See-and-touch session (with gloves): presentation of some cuneiform tablets from the Böhl Collection in Leiden (Waal, director of NINO)
18:00 Wine and Cheese party at the Lorentz Center

TUESDAY 15 March

Surface scanning techniques: studying incision, manipulation, wrapping
Chair: Bruhn
Moderators: Johnson, Bennison-Chapman, De Boer

9:00 Keynote 1: Sign, fingerprint and handwriting recognition in digital cuneiform projects (Mara)
9:30 Keynote 2: Ink traces on clay tablets: an epigrapher’s testimony (Sonnevelt)
10:00 Coffee break
10:30 Group activity
   1: Imaging with Multi-Light Reflectance dome methods (Hameeuw)
   2: Rope, textile and reed mat traces on Neolithic pottery (Berghuijs)
11:30 Kenynote 3: Methods to find faint traces of pigements and ink on archaeological objects (Alfeld)
12:00 Lunch
13:30 **Fingerprints: imaging, analysis, interpretation**  
Keynote 1: Finger print analysis in archaeology & forensic investigation (De Jongh)  
Keynote 2: Finger prints: from Neolithic clay tokens to cuneiform tablets (Bennison-Chapman)  
14:30 Expert panel: challenges and opportunities of finger print analysis on cuneiform tablets  
(panelists: De Jongh, Bennison-Chapman, Sero, Dieudonné, Mara, Hameeuw, Taylor, Waerzeggers)  
Q1: what is the best technique to capture fingerprints on clay tablets? On the surface and inside the envelopes?  
Q2: potential of 3d analysis of fingerprints vs 2d?  
Q3: Are the quantity and quality of fingerprints on clay tablets sufficient?  
Q4: What are good corpora of tablets for fingerprint analysis?  

15:30 On the bus to Delft  
16:15 Laboratory visits at TU Delft (guides: Van Eijck and Ngan-Tillard)  

**WEDNESDAY 16 March**

**Clay tablets in the environment: chemical analysis, clay inclusions, climate**  
Chair: Düring  
Moderators: Ngan-Tillard, Alfeld, Klinkenberg

9:00 Keynote: Provenance analysis of clay texts: state of the art and prospects (Stratford)  
9:30 Response by Van Os  
9:45 Keynote: Clay tablets as containers of data on the palaeoenvironment (Watanabe et al.)  
10:15 Coffee break  
10:45 Group activity  
1: Getting element-specific information from the pristine interior bulk of precious objects, non-invasively (Van Eijck)  
2: Botanical remains in ceramics and soils (Schepers)  
3: Climate data in cuneiform tablets (Ludlow and McGovern)  
11:30 Plenary discussion: the clay tablet as data container beyond text  
Q1: What new questions can we ask about the ancient Mesopotamian environment thanks to chemical analysis and analyses of micro- and macro-remains in clay tablets?  
Q2: What new questions can we ask about data security in ancient Mesopotamia thanks to surface scanning techniques?  
Q3: What else would we like to capture but cannot yet with these digitalization techniques?  
12:00 Lunch

**Data security in ancient societies: archives, knowledge, networks**  
Chair: Michel  
Moderators: Prechel, Mara

13:30 Keynote 1: The organization of knowledge in the earliest cuneiform texts (Johnson)  
14:00 Keynote 3: The archaeological context of cuneiform tablets: archives or rubbish? (Klinkenberg and Düring)  
14:30 Keynote 4: Identifying scribal agency: philology and palaeography (Jursa)  
15:00 Coffee  
16:00 Group activity  
1: Sumerian Networks: Linked Data Models from ORACC to Wikibase (Anderson)
2: Duplicating texts for security (Gross)

17:00 Plenary discussion:
Q: What role do archives play in ancient data security?
Q1: What role does literacy and scribal training play in data security?
Q2: How to incorporate archaeological and philological data in a data science environment?
   How to integrate these streams of data?
Q3: What is the benefit of these integrated systems for Humanities scholars?

19:00 Dinner in Leiden (Prentenkabinet)

THURSDAY 17 March

(3D) imaging of clay tablets and heritage conservation
Chair: Mara
Moderators: Bruhn, Klinkenberg

9:00 The "Scanning for Syria project" (Ngan-Tillard etc.)
9:15 Keynote 1: Protection of digital images data of cuneiform tablets in the Iraq museum collection (al Mimar)
9:45 Keynote 2: Multidisciplinary information systems of cuneiform texts (Mynářová, Zemanek)
10:15 Coffee
10:45 Group activity: The Haft Tappeh project
   - Introduction to the Haft Tappeh project (Prechel)
   - Hands-on session: Live presentation of the cuneiform workbench of the Haft Tappeh project (Homburg)
12:15 Insights in cuneiform tablet restauration (audio interview by Jon Taylor with Carmen Gütschow from the Thin End of the Wedge podcast series)
12:30 Panel discussion (panelists: al Mimar, Taylor, Kertai, Waal, Hameeuw, Mynářová, Prechel, de Boer, Ngan-Tillard, Vallach)
   Q1: What are the challenges and opportunities of (3D) imaging for heritage conservation?
13:00 Lunch

Stock-taking: developing a toolkit for our consortium
Chair: Johnson
Moderators: Van Eijck, De Boer, Waerzeggers

14:30 Keynote: Text fabric: computational environments for cuneiform text data (Roorda)
15:00 Plenary session
   1: Towards a multi-physics analysis of cuneiform tablets— testimonies from the field
   2: Corpus selection and sample-taking: best practices
   3: Data sharing and infrastructure
   4: Societal impact, valorisation
16:00 Coffee

Inventory of innovation likely to be generated by the consortium
Chair: Dieudonné
Moderators: Ngan-Tillard, Van Eijck, Stratford, Michel

1 Tentative list. It is likely that the new proposals will emerge from the workshop. New priorities will be set during lunch.
16:30 Plenary session
   1: In artificial intelligence, develop pattern recognition algorithms based on 3D surfaces and volumes
   2: In geoscience, modify current perspectives on the link between clayey artefacts and provenance
   3: In engineering, develop micro-CT guided excavation of inclusions targeted for detailed (SEM) analysis
   4: In environmental science, learning from the past
   5: In conservation studies, contribute to the elaboration of a protocol for the restauration and preservation of clayey artefacts
   6: In humanities, map the complexity of archive-keeping cuneiform texts from ancient times to the digital era
17:30 Wrapping up the afternoon plenary session

FRIDAY 18 March

How to get funding

9:00 Informal meeting with grant advisers from LURIS (Kelder)
9:45 Briefing from the LDE Centre for Global Heritage (De Boer)
10:00 Personal reflection on commitment
10:15 Coffee break

Setting our agenda
Chair: Waerzeggers
Moderators: Ngan-Tillard, De Boer, Mara, Roorda

10:45 Plenary session (sticky-note brainstorm session): formulating the nature, aims and strengths of our consortium; defining our common ground and the areas of mutual advancement; identifying sub-projects and sub-teams; critically evaluating the viability of "ancient data security" as an overarching theme of the consortium
12:00 Lunch
13:30 Plenary session: drafting a position paper with a rough outline of a future grant proposal, translating the outcomes of days 1-2-3-4 into work packages; establishing the post-workshop agenda and responsibilities until submission of grant proposal. The organizers sketch a draft on the board based on reports of previous days and the morning session, inviting reflections on how to upgrade these ideas into concrete plans.
15:00 Closing