

**From:** Antonakakis, Manos<manos@gatech.edu>  
**Sent on:** Wednesday, July 10, 2019 8:28:24 PM  
**To:** Ian Crone<ian.crone@darpa.mil>  
**BCC:** Antonakakis, Manos<manos@gatech.edu>  
**Subject:** [Fwd: Fw: connection for briefing on Enhanced Attribution]

This is the email. In this context I am reading the "program die" as the transition actually being killed (due to the entire context of this thread).

Maybe I am just reading into this too much.

----- Forwarded Message -----

From: "Antonakakis, Manos" <manos@gatech.edu>  
To: Ian Crone <ian.crone@darpa.mil>  
Subject: Fw: connection for briefing on Enhanced Attribution  
Date: Wed, 3 Jul 2019 08:37:52 -0400

FYI-

—  
Manos Antonakakis | manos@gatech.edu  
Georgia Institute of Technology  
FF7D 4FDF 9115 8077 92D2 5B59 5120 5E89 BE1B 3668

---

From: McConnell, Kirk (Armed Services) <Kirk\_McConnell@armed-services.senate.gov>  
Sent: Saturday, June 29, 2019 10:17 AM  
To: Rodney Joffe  
Cc: Antonakakis, Manos  
Subject: Re: connection for briefing on Enhanced Attribution

I believe that Farrell would rather see the program die than work with Congress.

Sent from my iPhone

On Jun 29, 2019, at 12:39 AM, Rodney Joffe <rjoffe@centergate.com<mailto:rjoffe@centergate.com>> wrote:

Jeez

What a piece of work! Glad you don't have any influence with DARPA's budget that Michael relies on.

Manos?

On Jun 29, 2019, at 12:31 AM, McConnell, Kirk (Armed Services) <Kirk\_McConnell@armed-services.senate.gov<mailto:Kirk\_McConnell@armed-services.senate.gov>> wrote:

Well, Michael is quite a guy isn't he?

Sent from my iPhone

Begin forwarded message:

From: "Farrell, Michael" <michael.farrell@iisp.gatech.edu<mailto:michael.farrell@iisp.gatech.edu>>  
Date: June 28, 2019 at 4:41:00 PM EDT  
To: "McConnell, Kirk (Armed Services)" <Kirk\_McConnell@armed-services.senate.gov<mailto:Kirk\_McConnell@armed-services.senate.gov>>  
Cc: Ian Crone <ian.crone@darpa.mil<mailto:ian.crone@darpa.mil>>, "lisa.heyeshes@darpa.mil<mailto:lisa.heyeshes@darpa.mil>" <lisa.heyeshes@darpa.mil<mailto:lisa.heyeshes@darpa.mil>>  
Subject: Re: connection for briefing on Enhanced Attribution

Kirk,

Thanks for your interest in Georgia Tech research. However, we (GT) have no comment or position on the below. In fact, going forward please contact DARPA directly about any and all issues or questions or comments related to the enhanced attribution program. The DARPA congressional liaison and program manager are copied on this message and can respond, as needed. The Georgia Tech/GTRI PI and Co-PIs on this research program are not the appropriate POCs for any questions, comments, or concerns.

The government, not GT, makes decisions related to funding and transition from research at DARPA to other entities. The focus of Manos, myself and other Co-PIs is completely on doing impactful research. We follow contractual requirements and relevant policies for our part of this program (and GT is only one part), and devote our energy to 'creating the next' in cyber security.

Best,

Michael

On Jun 25, 2019, at 12:24, McConnell, Kirk (Armed Services) <Kirk\_McConnell@armed-services.senate.gov<mailto:Kirk\_McConnell@armed-services.senate.gov>> wrote:

FYI. Andy is on the SAC-D staff. Andrew Pahutski from SCO is seeking approval from us on the Hill to shift some SCO money to Enhanced Attribution.

From: McConnell, Kirk (Armed Services)  
Sent: Tuesday, June 25, 2019 12:22 PM  
To: Heyes, Lisa (lisa.heyeshes@darpa.mil<mailto:lisa.heyeshes@darpa.mil>) <lisa.heyeshes@darpa.mil<mailto:lisa.heyeshes@darpa.mil>>; Vanlandingham, Andy (Appropriations) <Andy\_Vanlandingham@appro.senate.gov<mailto:Andy\_Vanlandingham@appro.senate.gov>>  
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Lisa –

Andy Vanlandingham is interested in learning more about DARPA's Enhanced Attribution cybersecurity program. It turns out that a current SCO program manager whom we know well is moving over to Cyber Command to help with the transition of this DARPA program to CYBERCOM. Thanks, Kirk

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Manos Antonakakis | Associate Professor | manos@gatech.edu  
School of Electrical and Computer Engineering  
Georgia Institute of Technology  
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**From:** Antonakakis, Manos<manos@gatech.edu>  
**Sent on:** Wednesday, July 31, 2019 1:17:13 AM  
**To:** Rodney Joffe<rjoffe@packetforensics.com>; Lily Kim<Lily.Kim@microsoft.com>  
**CC:** Kirk McConnell<Kirk\_McConnell@armed-services.senate.gov>; Victor Oppleman<victor@packetforensics.com>; Ashfia Rahman<asrahma@microsoft.com>; Christian Cook<Christian.Cook@microsoft.com>; Lisa Patel<lpatel@centergate.com>  
**BCC:** Antonakakis, Manos<manos@gatech.edu>  
**Subject:** Re: introduction

Kirk, thanks for the intros.

Lily, pleased to meet you!

This Friday works for me. The week after the next I will be hosting a hackathon at GT for DARPA, so my schedule will be less flexible. If you come up with a date, I will try to make it work but I cannot promise that I will be able to.

Many thanks,

--

Manos Antonakakis | Associate Professor | manos@gatech.edu  
School of Electrical and Computer Engineering  
Georgia Institute of Technology  
FF7D 4FDF 9115 8077 92D2 5B59 5120 5E89 BE1B 3668

**From:** Rodney Joffe<rjoffe@centergate.com>  
**Sent on:** Saturday, June 29, 2019 5:38:35 AM  
**To:** McConnell, Kirk (Armed Services)<Kirk\_McConnell@armed-services.senate.gov>  
**CC:** Antonakakis Manos<manos@gatech.edu>  
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**Cc:** Ian Crone <[ian.crone@darpa.mil](mailto:ian.crone@darpa.mil)>, "lisa.heyas@darpa.mil" <[lisa.heyas@darpa.mil](mailto:lisa.heyas@darpa.mil)>  
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Vanlandingham, Andy (Appropriations) <  
[Andy\\_Vanlandingham@appro.senate.gov](mailto:Andy_Vanlandingham@appro.senate.gov)>

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From: "Antonakakis, Manos" </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=7E6B0AFC581E477DB35A37C3A3A79AEB-ANTONAKAKIS>  
Sent on: Wednesday, November 29, 2017 3:43:52 AM  
To: GAMBINO, DANIELLE M CIV USAF AFMC AFRL/RIGB <danielle.gambino@us.af.mil>  
CC: Keromytis, Angelos <angelos.keromytis@darpa.mil>; Patel, Tejas (contr-i2o) <tejas.patel.ctr@darpa.mil>; Maddern, Thomas (contr-i2o) <Thomas.Maddern.ctr@darpa.mil>  
Subject: Re: DARPA EA PI Meeting - Draft Slides Due

Danielle, you should have the slides via AMRDEC.

As I noted in the AMRDEC email, while I have no problem presenting them in the PI meeting, I think we should restrict the electronic distribution of this deck. There are too many TTPs listed that if they are accidentally leaked, we will be losing unique sources and methods we are using for this type of attribution analysis.

I will leave the final decision to Angelos, Tejas and Tom on this one.

Thanks,

—  
Manos Antonakakis | manos@gatech.edu  
Georgia Institute of Technology  
FF7D 4FDF 9115 8077 92D2 5B59 5120 5E89 BE1B 3668

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From: Antonakakis, Manos  
Sent: Tuesday, November 28, 2017 5:32:06 PM  
To: GAMBINO, DANIELLE M CIV USAF AFMC AFRL/RIGB  
Cc: Keromytis, Angelos; Patel, Tejas (contr-i2o); Maddern, Thomas (contr-i2o)  
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Hey Danielle, I will send over the slide late Wednesday. Tejas and/or Angelos can explain the reason.

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Manos Antonakakis | manos@gatech.edu  
Georgia Institute of Technology  
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---

From: GAMBINO, DANIELLE M CIV USAF AFMC AFRL/RIGB <danielle.gambino@us.af.mil>  
Sent: Tuesday, November 28, 2017 9:39:29 AM  
To: ncostigan@behaviorsec.com; ideutschmann@behaviorsec.com; Brian Kirk; wright@ainfosec.com; dorar@ainfosec.com; scott.tenaglia@invincea.com; chris.greamo@invincea.com; Antonakakis, Manos; mikef@kududyn.com; James Nuttall; Ben.Radford@soteradefense.com; Emmy.thompson@soteradefense.com; James.lobb@soteradefense.com; Michelle Lossau; schwab@isi.edu; brigidann@usc.edu  
Cc: Keromytis, Angelos; Patel, Tejas (contr-i2o); Maddern, Thomas (contr-i2o); GAMBINO, DANIELLE M CIV USAF AFMC AFRL/RIGB  
Subject: DARPA EA PI Meeting - Draft Slides Due

Good Morning,

This is a friendly reminder that your draft presentation material is due within three (3) days prior to each presentation. Please upload your slides into the TFIMS file storage area. Alternatively, you are welcome to send the slides via AMRDEC

From: "Antonakakis, Manos" </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=7E6B0AFC581E477DB35A37C3A3A79AEB-ANTONAKAKIS>  
Sent on: Wednesday, November 29, 2017 4:21:47 PM  
To: GAMBINO, DANIELLE M CIV USAF AFMC AFRL/RIGB <danielle.gambino@us.af.mil>  
CC: Keromytis, Angelos <angelos.keromytis@darpa.mil>; Patel, Tejas (contr-i2o) <tejas.patel.ctr@darpa.mil>; Maddern, Thomas (contr-i2o) <Thomas.Maddern.ctr@darpa.mil>  
Subject: Re: DARPA EA PI Meeting - Presentation Slide Distribution Statements

Folks, I just sent the properly annotated slides to everyone but Angelos. At this point I do not think there is anything else that needs to be done from the GT side for the PI meeting.

Thanks,

—  
Manos Antonakakis | manos@gatech.edu  
Georgia Institute of Technology  
FF7D 4FDF 9115 8077 92D2 5B59 5120 5E89 BE1B 3668

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From: GAMBINO, DANIELLE M CIV USAF AFMC AFRL/RIGB <danielle.gambino@us.af.mil>  
Sent: Wednesday, November 29, 2017 10:46:19 AM  
To: ncostigan@behaviorsec.com; ideutschmann@behaviorsec.com; Brian Kirk; wright@ainfosec.com; dorar@ainfosec.com; scott.tenaglia@twosixlabs.com; Antonakakis, Manos; mikef@kududyn.com; James Nuttall; Ben.Radford@soteradefense.com; Emmy.thompson@soteradefense.com; James.lobb@soteradefense.com; schwab@isi.edu; brigidann@usc.edu  
Cc: Keromytis, Angelos; Patel, Tejas (contr-i2o); Maddern, Thomas (contr-i2o)  
Subject: DARPA EA PI Meeting - Presentation Slide Distribution Statements

Good Morning,

In preparation for Friday's PI meeting, we need to ensure the distribution markings are properly added to your slides.

Kudu and GT please add the following markings to your slides:

DISTRIBUTION F. Further Distribution authorized only as directed by AFRL/RIGB 525 Brooks Road, Rome NY 13441 or higher DoD authority. 29 NOV 2017.

All other teams, please add the following to your slides:

DISTRIBUTION C. Distribution authorized to U.S. Government Agencies and their contractors; Administrative or Operational Use; 29 NOV 2017. Other requests for this document shall be referred to AFRL/RIGB 525 Brooks Road, Rome NY 13441.

Let me know if you have any questions.

v/r,  
Danielle

From: "Antonakakis, Manos" </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=7E6B0AFC581E477DB35A37C3A3A79AEB-ANTONAKAKIS>  
Sent on: Monday, December 4, 2017 9:38:52 PM  
To: GAMBINO, DANIELLE M CIV USAF AFMC AFRL/RIGB <danielle.gambino@us.af.mil>  
CC: Keromytis, Angelos <angelos.keromytis@darpa.mil>; Patel, Tejas (contr-i2o) <tejas.patel.ctr@darpa.mil>; Maddern, Thomas (contr-i2o) <Thomas.Maddern.ctr@darpa.mil>  
Subject: Re: DARPA EA PI Meeting Slides

Just sent them to you via ARMDEC.

Thanks,

—  
Manos Antonakakis | manos@gatech.edu  
Georgia Institute of Technology  
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From: GAMBINO, DANIELLE M CIV USAF AFMC AFRL/RIGB <danielle.gambino@us.af.mil>  
Sent: Monday, December 4, 2017 4:05:17 PM  
To: ncostigan@behaviorsec.com; ideutschmann@behaviorsec.com; Brian Kirk; wright@ainfosec.com; scott.tenaglia@twosixlabs.com; Antonakakis, Manos; mikef@kududyn.com; James Nuttall; Ben.Radford@soteradefense.com; schwab@isi.edu  
Cc: Keromytis, Angelos; Patel, Tejas (contr-i2o); Maddern, Thomas (contr-i2o); GAMBINO, DANIELLE M CIV USAF AFMC AFRL/RIGB  
Subject: RE: DARPA EA PI Meeting Slides

All,

My apologies, please keep the distro statement on the slides presented on Friday.

For future presentations, please do not include the distro statement.

Danielle

-----Original Message-----

From: GAMBINO, DANIELLE M CIV USAF AFMC AFRL/RIGB  
Sent: Monday, December 04, 2017 3:13 PM  
To: 'ncostigan@behaviorsec.com' <ncostigan@behaviorsec.com>; 'ideutschmann@behaviorsec.com' <ideutschmann@behaviorsec.com>; 'Brian Kirk' <bkirk@behaviorsec.com>; 'wright@ainfosec.com' <wright@ainfosec.com>; 'scott.tenaglia@twosixlabs.com' <scott.tenaglia@twosixlabs.com>; 'Antonakakis, Manos' <manos@gatech.edu>; 'mikef@kududyn.com' <mikef@kududyn.com>; 'James Nuttall' <james@kududyn.com>; 'Ben.Radford@soteradefense.com' <Ben.Radford@soteradefense.com>; 'schwab@isi.edu' <schwab@isi.edu>  
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Subject: DARPA EA PI Meeting Slides

Good Afternoon,

It was so great seeing everyone on Friday! This is a friendly reminder that the final version of your presentations are due NLT December 15. Please send them to everyone on the "cc" line via AMRDEC SAFE.

Angelos has requested that the distribution statements be removed from your presentations.



I will leave the final decision to Angelos, Tejas and Tom on this one.

Thanks,

-

Manos Antonakakis | [manos@gatech.edu](mailto:manos@gatech.edu)

Georgia Institute of Technology

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## Virgil, Franchesca

---

**From:** McConnell, Kirk (Armed Services) <Kirk\_McConnell@armed-services.senate.gov>  
**Sent:** Saturday, June 29, 2019 12:32 AM  
**To:** Antonakakis, Manos; Rodney Joffe; Joffe Rodney  
**Subject:** Fwd: connection for briefing on Enhanced Attribution

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**Cc:** Ian Crone <[ian.crone@darpa.mil](mailto:ian.crone@darpa.mil)>, "lisa.heyes@darpa.mil" <[lisa.heyes@darpa.mil](mailto:lisa.heyes@darpa.mil)>  
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Vanlandingham, Andy (Appropriations)  
<[Andy\\_Vanlandingham@appro.senate.gov](mailto:Andy_Vanlandingham@appro.senate.gov)>  
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From: Rodney Joffe <rjoffe@packetforensics.com>

Sent on: Friday, August 2, 2019 4:24:17 PM

To: Ashfia Rahman <asrahma@microsoft.com>

CC: Lily Kim <Lily.Kim@microsoft.com>; Manos Antonakakis <manos@gatech.edu>; William Chappell <William.Chappell@microsoft.com>; Kirk McConnell <Kirk\_McConnell@armed-services.senate.gov>; Victor Oppleman <victor@packetforensics.com>; Christian Cook <Christian.Cook@microsoft.com>; Lisa Patel <lpatel@centergate.com>

Subject: Re: introduction

Any chance we can make this 4pm?

> On Aug 2, 2019, at 11:21 AM, Ashfia Rahman <asrahma@microsoft.com> wrote:

>

> Hi Rodney,

>

> Invite has been sent for today, 8/2 at 3:30pm EST

>

> Let me know if you don't see the invite on your calendar.

>

> Thanks,

> Ashfia

>

> -----Original Message-----

> From: Rodney Joffe <rjoffe@packetforensics.com>

> Sent: Thursday, August 1, 2019 9:18 PM

> To: Ashfia Rahman <asrahma@microsoft.com>

> Cc: Lily Kim <Lily.Kim@microsoft.com>; Manos Antonakakis <manos@gatech.edu>; William Chappell <William.Chappell@microsoft.com>; Kirk McConnell <Kirk\_McConnell@armed-services.senate.gov>; Victor Oppleman <victor@packetforensics.com>; Christian Cook <Christian.Cook@microsoft.com>; Lisa Patel <lpatel@centergate.com>

> Subject: Re: introduction

>

> Hi Ashfia,

>

> Did you identify a slot where Lily is available for tomorrow?

>

> Thanks

> Rodney

>

>

>> On Jul 30, 2019, at 10:15 PM, Lily Kim <Lily.Kim@microsoft.com> wrote:

>>

>> Hi Manos,

>>

>> I believe I can make Friday work ☐☐. @Ashfia Rahman- can you please help with scheduling? We can start w/ 30 min.

>>

>> @William Chappell- would be good for you to attend as well if you are free.

>>

>> Thanks team!

>>

>> -----Original Message-----

>> From: Antonakakis, Manos <manos@gatech.edu>

>> Sent: Tuesday, July 30, 2019 9:17 PM

>> To: Rodney Joffe <rjoffe@packetforensics.com>; Lily Kim <Lily.Kim@microsoft.com>

>> Cc: Kirk McConnell <Kirk\_McConnell@armed-services.senate.gov>; Victor Oppleman <victor@packetforensics.com>; Ashfia Rahman <asrahma@microsoft.com>; Christian Cook <Christian.Cook@microsoft.com>; Lisa Patel <lpatel@centergate.com>

>> Subject: Re: introduction

>>

>> Kirk, thanks for the intros.

>>

>> Lily, pleased to meet you!

>>

>> This Friday works for me. The week after the next I will be hosting a hackathon at GT for DARPA, so my schedule will be less flexible. If you come up with a date, I will try to make it work but I cannot promise that I will be able to.

>>

>> Many thanks,

>>

>> --

>> Manos Antonakakis | Associate Professor | [manos@gatech.edu](mailto:manos@gatech.edu) School of Electrical and Computer Engineering Georgia Institute of Technology FF7D 4FDF 9115 8077 92D2 5B59 5120 5E89 BE1B 3668

>

From: Rodney Joffe <rjoffe@packetforensics.com>

Sent on: Wednesday, July 31, 2019 1:41:51 AM

To: Lily Kim <Lily.Kim@microsoft.com>

CC: Kirk McConnell <Kirk\_McConnell@armed-services.senate.gov>; Victor Oppleman <victor@packetforensics.com>;

Manos Antonakakis <manos@gatech.edu>; Ashfia Rahman <asrahma@microsoft.com>; Christian Cook

<Christian.Cook@microsoft.com>; Lisa Patel <lpatel@centergate.com>

Subject: Re: introduction

Hi Lily,

Pleased to eMeet you. And Kirk, many thanks for the introduction.

Lily, we'd be happy to talk with you whenever our schedules match :-). I can speak for Vic and myself. I'm most available Friday of this week. Next week I am at BlackHat... but back and available the following week. Also happy to meet in person (although Manos is in Atlanta). Where in the DC area are you located? @Lisa Patel can coordinate from my side.

Regards

Rodney

> On Jul 29, 2019, at 7:42 PM, Lily Kim <Lily.Kim@microsoft.com> wrote:

>

> Thanks for the intro Kirk!

>

> Vic/Rodney/Manos- would love to do a quick call to introduce myself and learn more about your capabilities.

>

> If you are interested- @Ashfia Rahman/@Christian Cook can help schedule.

>

> Many thanks, Lily

>

> From: McConnell, Kirk (Armed Services) <Kirk\_McConnell@armed-services.senate.gov>

> Sent: Monday, July 29, 2019 7:35 PM

> To: Victor Oppleman <victor@packetforensics.com>; Rodney Joffe <rjoffe@packetforensics.com>; Antonakakis Manos (manos@gatech.edu) <manos@gatech.edu>; Lily Kim <Lily.Kim@microsoft.com>

> Subject: introduction

>

> Vic/Rodney/Manos – introducing you to Lily Kim, who runs Microsoft Azure's government operations. Lily worked in the DoD CIO's office supporting the Principal Cyber Adviser for a bunch of years, which is where we first met. Lily is interested in the idea of developing a proposal for the DoD Joint Artificial Intelligence Center (JAIC) to apply AI algorithms to massive amounts of metadata collected both inside and outside DoD's networks. DoD is already collecting a lot of internal metadata through a program called the Big Data Platform. But as you guys know all too well, things are just beginning to happen with respect to metadata collection and analysis outside of the DODIN. Your Enhanced Attribution program is the groundbreaking initiative, but as you guys also know, we need to be collecting flow data and a lot of pertinent "ad tech"-types of data as well. And then we also need to apply AI/ML technology on top. It makes sense ultimately to run an operation like this on top of a hyperscale cloud like Azure. Lily is interested in thinking about how to do that. Best, Kirk



**From:** Roddy, Sandi A.<Sandi.Roddy@jhuapl.edu>  
**Sent on:** Monday, November 4, 2019 6:04:58 PM  
**To:** Keromytis, Angelos D<angelos@gatech.edu>  
**CC:** Dinsmore, Peter T.<Pete.Dinsmore@jhuapl.edu>; Virginia L. Wright<Virginia.Wright@inl.gov>  
**Subject:** RE: ARLIS workshop - venue change and draft program

I must have mis-read the clearance passing... Yes, TS only is best.

---

**From:** Keromytis, Angelos D <angelos@gatech.edu>  
**Sent:** Monday, November 4, 2019 12:42 PM  
**To:** Roddy, Sandi A. <Sandi.Roddy@jhuapl.edu>  
**Cc:** Dinsmore, Peter T. <Pete.Dinsmore@jhuapl.edu>; Virginia L. Wright <Virginia.Wright@inl.gov>  
**Subject:** Re: ARLIS workshop - venue change and draft program

I don't think it matters a whole lot, to be honest.

Btw, where do you see SCI? It just says "Classified". Anyway, let's plan on keeping it at TS.

-Angelos

On Nov 4, 2019, at 10:53 AM, Roddy, Sandi A. <[Sandi.Roddy@jhuapl.edu](mailto:Sandi.Roddy@jhuapl.edu)> wrote:  
I just noticed the panel description was based on my earlier submission – does that need to change/be updated?

Also the session is at SCI and I thought Michael did not have an SCI... Not my problem, but just a consideration.

**From:**Michelle Morrison <[mmorriso@umd.edu](mailto:mmorriso@umd.edu)>

**Sent:**Thursday, October 31, 2019 12:48 PM

**To:**[Katherine.e.arrington.civ@mail.mil](mailto:Katherine.e.arrington.civ@mail.mil); [pb3a@virginia.edu](mailto:pb3a@virginia.edu); [malcolm.carrie@baesystems.com](mailto:malcolm.carrie@baesystems.com); [tcc@mitre.org](mailto:tcc@mitre.org); [joycec@dni.gov](mailto:joycec@dni.gov); Dinsmore, Peter T. <[Pete.Dinsmore@jhuapl.edu](mailto:Pete.Dinsmore@jhuapl.edu)>; Jeffrey Dodson <[Jeffrey.dodson@baesystems.com](mailto:Jeffrey.dodson@baesystems.com)>; [wrevanina@fbi.gov](mailto:wrevanina@fbi.gov); [ian.florey.fm@mail.mil](mailto:ian.florey.fm@mail.mil); [Randall.M.Fort@raytheon.com](mailto:Randall.M.Fort@raytheon.com); Gade, William R CIV DIA (US) <[William.Gade@dodiis.mil](mailto:William.Gade@dodiis.mil)>; [lisa@lharringtongroup.com](mailto:lisa@lharringtongroup.com); [helmut.h.hawkins.civ@mail.mil](mailto:helmut.h.hawkins.civ@mail.mil); Hedberg, Thomas D. (Fed) <[thomas.hedberg@nist.gov](mailto:thomas.hedberg@nist.gov)>; [moneer.helu@nist.gov](mailto:moneer.helu@nist.gov); [thomas.hoare@wiltonpark.org.uk](mailto:thomas.hoare@wiltonpark.org.uk); Hughes, Brian D CIV OSD OUSD R-E (USA) <[brian.d.hughes3.civ@mail.mil](mailto:brian.d.hughes3.civ@mail.mil)>; Ivester, Robert <[robert.ivester@ee.doe.gov](mailto:robert.ivester@ee.doe.gov)>; [edward.jakes@nnsa.doe.gov](mailto:edward.jakes@nnsa.doe.gov); [gordon.b.johnson@lmco.com](mailto:gordon.b.johnson@lmco.com); [angelos@gatech.edu](mailto:angelos@gatech.edu); [louis.kratz@lmco.com](mailto:louis.kratz@lmco.com); [jalewis@csis.org](mailto:jalewis@csis.org); [kirk.m.liddle.mil@mail.mil](mailto:kirk.m.liddle.mil@mail.mil); William Lucyshyn <[lucyshyn@umd.edu](mailto:lucyshyn@umd.edu)>; [rjmcclellan@micron.com](mailto:rjmcclellan@micron.com); [jessica.mcfate@tecsonomy.com](mailto:jessica.mcfate@tecsonomy.com); Michael McGrath <[mfm@mcgrath-analytics-llc.com](mailto:mfm@mcgrath-analytics-llc.com)>; Paul Michaels <[REDACTED]>; Chris Nissen <[can@mitre.org](mailto:can@mitre.org)>; [personst@gao.gov](mailto:personst@gao.gov); Wayne G Phoel <[wphoel@umd.edu](mailto:wphoel@umd.edu)>; [aporter@cs.umd.edu](mailto:aporter@cs.umd.edu); [dawn.pulliam@lmco.com](mailto:dawn.pulliam@lmco.com); [Kurt.r.ravenfeld@lmco.com](mailto:Kurt.r.ravenfeld@lmco.com); William C Regli <[regli@umd.edu](mailto:regli@umd.edu)>; Harvey Rishikof <[rishikofh@me.com](mailto:rishikofh@me.com)>; Roddy, Sandi A. <[Sandi.Roddy@jhuapl.edu](mailto:Sandi.Roddy@jhuapl.edu)>; [Robert.Rohrer@dni.gov](mailto:Robert.Rohrer@dni.gov); Rush, Scott <[scott.rush@lmco.com](mailto:scott.rush@lmco.com)>; Peter Sandborn <[sandborn@umd.edu](mailto:sandborn@umd.edu)>; [scott.m.sperling@lmco.com](mailto:scott.m.sperling@lmco.com); [timothy.sprock@nist.gov](mailto:timothy.sprock@nist.gov); [william.d.stephens24.civ@mail.mil](mailto:william.d.stephens24.civ@mail.mil); Switzer, Bryan R (Rick) <[switzerbr@state.gov](mailto:switzerbr@state.gov)>; Theriault, Jason C CIV DCSA DCSA ISIA (USA) <[jason.c.theriault.civ@mail.mil](mailto:jason.c.theriault.civ@mail.mil)>; [douglas.d.thomas@lmco.com](mailto:douglas.d.thomas@lmco.com); [mthomas4@fbi.gov](mailto:mthomas4@fbi.gov); Maryjo CIV (USA) <[maryjo.thomas.civ@mail.mil](mailto:maryjo.thomas.civ@mail.mil)>; Virginia L. Wright <[Virginia.Wright@inl.gov](mailto:Virginia.Wright@inl.gov)>; [may106@arl.psu.edu](mailto:may106@arl.psu.edu); [kim.skiles@lmco.com](mailto:kim.skiles@lmco.com); [jphelan@raytheon.com](mailto:jphelan@raytheon.com); [JEANNPC@dni.gov](mailto:JEANNPC@dni.gov)

**Cc:**Sara McConnell <[smcconnell@arlis.umd.edu](mailto:smcconnell@arlis.umd.edu)>; Craig Travers Lawrence <[clawren4@umd.edu](mailto:clawren4@umd.edu)>

**Subject:**ARLIS workshop - venue change and draft program

Dear all,

I hope this email finds you well. We are looking forward to seeing you in a couple of weeks. Please find attached a draft program for the workshop and a list of workshop participants– it's shaping up to be an exciting event!

**Importantly, please note that the venue for Day 1 of the workshop has changed.** Interest in the event

**From:** McConnell, Kirk (Armed Services)<Kirk\_McConnell@armed-services.senate.gov>

**Sent on:** Tuesday, July 2, 2019 2:27:10 AM

**To:** Antonakakis, Manos<manos@gatech.edu>

**Subject:** Briefing?

Manos — will it be possible for you to come brief staff from my committee, or will that cause you too much trouble with Michael Farrell? If you think it is okay to brief us, can we look at the third week of July?

If you can come brief us, 

Sent from my iPhone

**From:** McConnell, Kirk (Armed Services)<Kirk\_McConnell@armed-services.senate.gov>  
**Sent on:** Saturday, June 29, 2019 4:31:36 AM  
**To:** Antonakakis, Manos<manos@gatech.edu>; Rodney Joffe<Rodney.Joffe@neustar.biz>; Joffe Rodney<rjoffe@packetforensics.com>  
**Subject:** Fwd: connection for briefing on Enhanced Attribution

Well, Michael is quite a guy isn't he?

Sent from my iPhone  
Begin forwarded message:

**From:** "Farrell, Michael" <[michael.farrell@iisp.gatech.edu](mailto:michael.farrell@iisp.gatech.edu)>  
**Date:** June 28, 2019 at 4:41:00 PM EDT  
**To:** "McConnell, Kirk (Armed Services)" <[Kirk\\_McConnell@armed-services.senate.gov](mailto:Kirk_McConnell@armed-services.senate.gov)>  
**Cc:** Ian Crone <[ian.crone@darpa.mil](mailto:ian.crone@darpa.mil)>, "lisa.heyesh@darpa.mil" <[lisa.heyesh@darpa.mil](mailto:lisa.heyesh@darpa.mil)>  
**Subject:** Re: connection for briefing on Enhanced Attribution

Kirk,

Thanks for your interest in Georgia Tech research. However, we (GT) have no comment or position on the below. In fact, going forward please contact DARPA directly about any and all issues or questions or comments related to the enhanced attribution program. The DARPA congressional liaison and program manager are copied on this message and can respond, as needed. The Georgia Tech/GTRI PI and Co-PIs on this research program are not the appropriate POCs for any questions, comments, or concerns.

The government, not GT, makes decisions related to funding and transition from research at DARPA to other entities. The focus of Manos, myself and other Co-PIs is completely on doing impactful research. We follow contractual requirements and relevant policies for our part of this program (and GT is only one part), and devote our energy to 'creating the next' in cyber security.

Best,

Michael

On Jun 25, 2019, at 12:24, McConnell, Kirk (Armed Services) <[Kirk\\_McConnell@armed-services.senate.gov](mailto:Kirk_McConnell@armed-services.senate.gov)> wrote:

FYI. Andy is on the SAC-D staff. Andrew Pahutski from SCO is seeking approval from us on the Hill to shift some SCO money to Enhanced Attribution.

**From:** McConnell, Kirk (Armed Services)  
**Sent:** Tuesday, June 25, 2019 12:22 PM  
**To:** Heyes, Lisa ([lisa.heyesh@darpa.mil](mailto:lisa.heyesh@darpa.mil)) <[lisa.heyesh@darpa.mil](mailto:lisa.heyesh@darpa.mil)>; Vanlandingham, Andy (Appropriations) <[Andy\\_Vanlandingham@appro.senate.gov](mailto:Andy_Vanlandingham@appro.senate.gov)>  
**Subject:** connection for briefing on Enhanced Attribution  
Lisa –  
Andy Vanlandingham is interested in learning more about DARPA's Enhanced

Attribution cybersecurity program. It turns out that a current SCO program manager whom we know well is moving over to Cyber Command to help with the transition of this DARPA program to CYBERCOM. Thanks, Kirk

**From:** McConnell, Kirk (Armed Services)<Kirk\_McConnell@armed-services.senate.gov>

**Sent on:** Monday, July 29, 2019 11:34:54 PM

**To:** Victor Oppleman<victor@packetforensics.com>; Rodney Joffe<rjoffe@packetforensics.com>; Antonakakis, Manos<manos@gatech.edu>; Lily Kim<Lily.Kim@microsoft.com>

**Subject:** introduction

Vic/Rodney/Manos – introducing you to Lily Kim, who runs Microsoft Azure’s government operations. Lily worked in the DoD CIO’s office supporting the Principal Cyber Adviser for a bunch of years, which is where we first met. Lily is interested in the idea of developing a proposal for the DoD Joint Artificial Intelligence Center (JAIC) to apply AI algorithms to massive amounts of metadata collected both inside and outside DoD’s networks. DoD is already collecting a lot of internal metadata through a program called the Big Data Platform. But as you guys know all too well, things are just beginning to happen with respect to metadata collection and analysis outside of the DODIN. Your Enhanced Attribution program is the groundbreaking initiative, but as you guys also know, we need to be collecting flow data and a lot of pertinent “ad tech”-types of data as well. And then we also need to apply AI/ML technology on top. It makes sense ultimately to run an operation like this on top of a hyperscale cloud like Azure. Lily is interested in thinking about how to do that. Best, Kirk

**From:** McConnell, Kirk (Armed Services)<Kirk\_McConnell@armed-services.senate.gov>  
**Sent on:** Wednesday, July 10, 2019 6:45:00 PM  
**To:** Antonakakis, Manos<manos@gatech.edu>  
**Subject:** RE: Briefing?

Manos -- hoping to connect on this. Thanks, Kirk

-----Original Message-----

From: McConnell, Kirk (Armed Services) <Kirk\_McConnell@armed-services.senate.gov>  
Sent: Monday, July 01, 2019 10:27 PM  
To: Antonakakis Manos <manos@gatech.edu>  
Subject: Briefing?

Manos — will it be possible for you to come brief staff from my committee, or will that cause you too much trouble with Michael Farrell? If you think it is okay to brief us, can we look at the third week of July?

If you can come brief us, [REDACTED].

Sent from my iPhone

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**Sent on:** Saturday, June 29, 2019 2:17:29 PM  
**To:** Rodney Joffe<rjoffe@centergate.com>  
**CC:** Antonakakis, Manos<manos@gatech.edu>  
**Subject:** Re: connection for briefing on Enhanced Attribution

I believe that Farrell would rather see the program die than work with Congress.

Sent from my iPhone

On Jun 29, 2019, at 12:39 AM, Rodney Joffe <[rjoffe@centergate.com](mailto:rjoffe@centergate.com)> wrote:

Jeez

What a piece of work! Glad you don't have any influence with DARPA's budget that Michael relies on.

Manos?

On Jun 29, 2019, at 12:31 AM, McConnell, Kirk (Armed Services) <[Kirk\\_McConnell@armed-services.senate.gov](mailto:Kirk_McConnell@armed-services.senate.gov)> wrote:

Well, Michael is quite a guy isn't he?

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**Cc:** Ian Crone <[ian.crone@darpa.mil](mailto:ian.crone@darpa.mil)>, "lisa.heyas@darpa.mil" <[lisa.heyas@darpa.mil](mailto:lisa.heyas@darpa.mil)>  
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Kirk,

Thanks for your interest in Georgia Tech research. However, we (GT) have no comment or position on the below. In fact, going forward please contact DARPA directly about any and all issues or questions or comments related to the enhanced attribution program. The DARPA congressional liaison and program manager are copied on this message and can respond, as needed. The Georgia Tech/GTRI PI and Co-PIs on this research program are not the appropriate POCs for any questions, comments, or concerns.

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---

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**Subject:** connection for briefing on Enhanced Attribution

Lisa –

Andy Vanlandingham is interested in learning more about DARPA's Enhanced Attribution cybersecurity program. It turns out that a current SCO program manager whom we know well is moving over to Cyber Command to help with the transition of this DARPA program to CYBERCOM. Thanks, Kirk



From: Lily Kim <Lily.Kim@microsoft.com>

Sent: Tuesday, July 30, 2019 10:16 PM

To: Antonakakis, Manos <manos@gatech.edu>; Rodney Joffe <rjoffe@packetforensics.com>; Ashfia Rahman <asrahma@microsoft.com>; William Chappell <William.Chappell@microsoft.com>

Cc: McConnell, Kirk (Armed Services) <Kirk\_McConnell@armed-services.senate.gov>; Victor Oppleman <victor@packetforensics.com>; Christian Cook <Christian.Cook@microsoft.com>; Lisa Patel <lpatel@centergate.com>

Subject: RE: introduction

Hi Manos,

I believe I can make Friday work ☐☐. @Ashfia Rahman- can you please help with scheduling? We can start w/ 30 min.

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Thanks team!

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Cc: Kirk McConnell <Kirk\_McConnell@armed-services.senate.gov>; Victor Oppleman <victor@packetforensics.com>; Ashfia Rahman <asrahma@microsoft.com>; Christian Cook <Christian.Cook@microsoft.com>; Lisa Patel <lpatel@centergate.com>

<lpatel@centergate.com>

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Many thanks,

--

Manos Antonakakis | Associate Professor | manos@gatech.edu School of Electrical and Computer Engineering Georgia Institute of Technology FF7D 4FDF 9115 8077 92D25B59 5120 5E89 BE1B 3668



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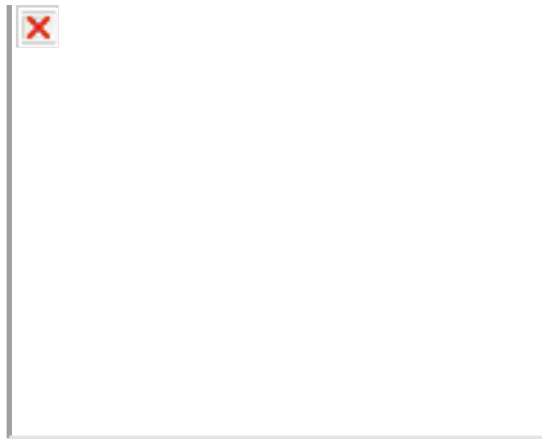
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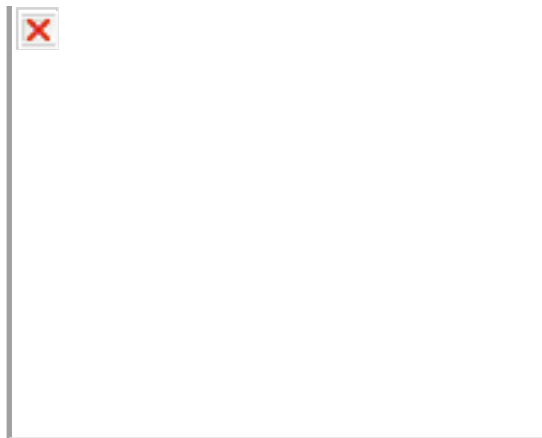
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or Magnesium Citrate 250 mg  
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Na  
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Cetirizine HCl 10 mg, 65 Liquid  
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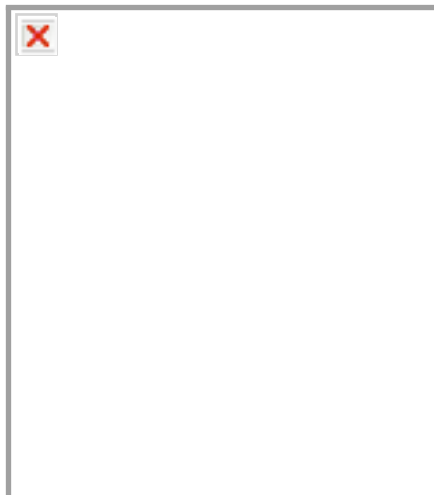
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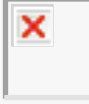
youth



- ["Directions for Professional Social Matching Systems,"](#) by Thomas Olsson, *et al.*, looks at computational matching of individuals or groups for vocational collaboration and co-creation.
- ["Tracking Shoppers,"](#) by Keith Kirkpatrick, explains how brick-and-mortar retailers, like their online counterparts, are using technology and to track shoppers through stores and leveraging that data to build sales and customer loyalty.
- ["Fuzzing: Hack, Art, and Science,"](#) by Patrice Godefroid, recommends fuzz testing to detect security vulnerabilities in software. Godefroid describes three core fuzzing techniques in an original video at <http://bit.ly/37>
- And [more](#).

As always, we welcome and appreciate your thoughts and comments about *Communications of the ACM*. Please send your feedback to [cacmfeedback@acm.org](mailto:cacmfeedback@acm.org).

Sincerely,  
 Andrew A. Chien  
 Editor-in-Chief, *Communications of the ACM*  
 William Eckhardt Professor, University of Chicago

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