

# Giulio Spinozzi

## Curriculum Vitae

**Research Collaborator, PhD**  
San Raffaele Telethon Institute for Gene Therapy  
Via Olgettina 58, 20132 Milan, Italy  
☎ +39-392-5342299  
☎ +39-02-2643-9301  
✉ giuliospinozzi@gmail.com  
🌐 <http://giuliospinozzi.altervista.org>  
🌐 <http://www.linkedin.com/in/giuliospinozzi>  
📧 liveforeverjohn



*I don't know what I may appear to the world, but to myself  
I seem to have been only a boy playing on the sea-shore,  
and diverting myself in now and then finding a smoother  
pebble or a prettier shell than ordinary, whilst the great  
ocean of truth lay all undiscovered before me. [I. Newton]*

## Info

Born	November 23, 1985 at Assisi (PG), Italy	Citizenship	Italian
Additional Address	Via Abruzzi 40, 20090 Segrate (MI), Italy	Driving License	B
ORCID	0000-0002-4220-2474	Scopus ID	56414693700

## Education

- 2013-2017 **Ph.D. in Computer Science**, University of Milano-Bicocca, Milan, Italy.  
*Anti-Cancer Drug Resistance Causal Modeling from Lentiviral-Vector Integration Site Studies*
- 2010-2012 **M.Sc. in Computer and Automation Engineering**, University of Perugia, Perugia, Italy.  
*Dynamics and Modeling Tools for the Experimental Evaluation of the Behavior of EGFR-IGF1R Pathway for the H1650 Cell Line*
- 2004-2009 **B.Sc. in Computer and Electronic Engineering**, University of Perugia, Perugia, Italy.  
*Project of a Control System for a Robot based on CAN Bus*

## Job Positions

- 2015-Present **Research Collaborator** - Bioinformatics Engineer (CCNL AIOP - D2), San Raffaele Telethon Institute for Gene Therapy (SR-Tiget) - Milan
- 2013-2015 Bioinformatics Engineer, Telethon Institute for Gene Therapy (TIGET) - Milan
- 2011-2012 Fellowship in Systems Biology, Santa Maria della Misericordia Hospital - Perugia
- 2008-2009 Web Developer, Sintesi srl - Perugia

## Research Interests

Bioinformatics and Informatics  
Gene Therapy  
Cancer  
Hematopoietic Stem Cells  
Systems Biology  
Big Data and Machine Learning  
Control Systems  
Systems Theory

## Conferences and Meetings

- 2017 *American Society of Gene and Cell Therapy (ASGCT)*, Washington, USA 9-13 May 2017
- 2017 *Telethon Convention*, Riva del Garda, Italy 13-15 March 2017
- 2016 *European Society of Gene and Cell Therapy (ESGCT)*, Florence, Italy 18-21 October 2016
- 2016 *24th Annual International Conference on Intelligent Systems for Molecular Biology*, Orlando (USA, Florida) 7-13 July 2016
- 2016 *Bioinformatics Italian Society, annual meeting 2016*, Salerno 15-17 June 2016
- 2016 *Telethon Tri-Retreat*, Roma 26-28 May 2016
- 2016 *San Raffaele Scientific Retreat 2016*, Baveno 18-20 March 2016
- 2015 *Workshop and School on Cancer, Systems and Complexity*, Como 29 September-3 October 2015
- 2015 *23rd Annual International Conference on Intelligent Systems for Molecular Biology and the 14th European Conference on Computational Biology*, Dublin 10-14 July 2015
- 2015 *Bioinformatics Italian Society, annual meeting 2015*, Milan 3-5 June 2015
- 2015 *San Raffaele Scientific Retreat 2015*, Stresa 13-15 March 2015
- 2014 *Workshop and School on Cancer, Systems and Complexity*, Como 28 September-2 October 2014
- 2014 *Bioinformatics Italian Society, annual meeting 2014*, Rome 26-28 February 2014
- 2013 *San Raffaele Scientific Retreat 2013*, Milan 29-30 November 2013
- 2009 Invited to the *XX National Congress AIP-ITCS* (“Associazione Informatici Professionisti - Italian Computer Society”), Assisi (PG) May 2009

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## Seminars and Teaching Activity

- 2017 *Seminar* (European Institute of Oncology, Prof. Giuseppe Testa, Laboratory of Stem Cell Epigenetics) “Anti-Cancer Drug Resistance Causal Modeling and Side Projects from Lentiviral-Vector Integration Site Studies”
- 2017 *Seminar* (Imperial College London, Prof. Andrea Crisanti, Crisanti Lab) “Anti-Cancer Drug Resistance Causal Modeling and Side Projects from Lentiviral-Vector Integration Site Studies”
- 2016 *Computational Biology* (Master of Science in Computer Science, 2<sup>nd</sup> year, University of Milano-Bicocca), “VISPA2: Faster and Extended Version of VISPA Tool for Integration Site Identification”
- 2016 *Bioinfo Club* (San Raffaele Hospital, Milan), “ISAnalytics: A tool to handle vector integration site data”
- 2016 *Bioinfo Club* (San Raffaele Hospital, Milan), “Faster and Extended Version of VISPA Tool for Integration Site Identification”
- 2015 *Bioinfo Club* (San Raffaele Hospital, Milan), “Anti-Cancer Drug Resistance Causal Modeling from Vector Integration Sites Studies”
- 2014 *Computational Biology* (Master of Science in Computer Science, 2<sup>nd</sup> year, University of Milano-Bicocca), “adLIMS: Integrated Laboratory Information Management System”
- 2012 Western Blot: a new way to quantify and elaborate, *University of Perugia*

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## Grants and Awards

- 2016 *Bioinformatics Italian Society, annual meeting 2016* - TRAVEL GRANT
- 2015 *Italian SuperComputing Resource Allocation* sponsored by CINECA for VISPA pipeline, developed in TIGET. - 50000 on PICO - P.I. Eng. Andrea Calabria
- 2014-2017 *PhD Fellowship* sponsored by University of Milano-Bicocca - Tutor: Prof. Giancarlo Mauri, Supervisors: Prof. Marco Antoniotti, Dr. Eugenio Montini
- 2013 *Fellowship* sponsored by San Raffaele Telethon Institute for Gene Therapy - P.I. Dr. Eugenio Montini

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## Certificates

- 2017 *Good Laboratory Practice (GLP) Principles (1 week)*, San Raffaele Hospital, Milan (MI)
- 2015 *Advances in Genome Sequencing: Bringing Next Generation Sequencing to Your Clinical Lab (Illumina)*, San Raffaele Hospital, Milan (MI)
- 2015 *PhD English Course for the doctoral program. Advanced Level C1 (32 weeks)*, University of Milano-Bicocca, Milan (MI)
- 2013 *The environment 'R': theoretical and practical course.* November 4th, University of Insubria, Busto Arsizio (VA)
- 2004 *European Computer Driving Licence* released by AICA (“Italian Association for Informatics and Automatic Calculation”) at ITC Capitini of Perugia

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## Service

- 2017 In Charge of the Analyses of Vector Integration Sites for Gene Therapy Clinical Trials and Pre-Clinical Projects, San Raffaele Hospital, Safety of Gene Therapy and Insertional Mutagenesis Research Unit, Milan (MI)
- 2011 Advisor of Applied Electronics and Micro-Controller Programming for Formula SAE, Racing Team Unipg, University of Perugia, Faculty of Engineering
- 2008 Teacher of LINUX Courses for University of Perugia, Faculty of Engineering

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## Affiliations

- 2016-Present *Bioinformatics Italian Society (BITS)*, Associate Member
- 2013-Present *Telethon Institute for Gene Therapy, TIGET*; Via Olgettina 58, I-20132 Milan (MI), Italy
- 2014-2017 *Department of Informatics, Systems and Communication*; University of Milano-Bicocca, Building U14, Viale Sarca 336, I-20126 Milan (MI), Italy
- 2010-2012 *Department of Electronic and Information Engineering, Faculty of Engineering (DIEI)*; University of Perugia, Via G. Duranti 93, I-06125 Perugia (PG), Italy
- 2010-2012 *Service and Industrial Robotics and Automation Laboratory (SIRALab)*; University of Perugia, Via G. Duranti 93, I-06125 Perugia (PG), Italy
- 2010-2012 *SIDRA, Società Italiana Docenti e Ricercatori in Automatica*
- 2008-2010 *LUG, Linux Users Group Perugia*

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## Computational Skills

- Languages Java, JavaScript, C, C++, SQL, PL/pgSQL, PHP, HTML, CSS, Python, Perl, Bash, L<sup>A</sup>T<sub>E</sub>X, Pascal, R, MATLAB
- Platforms High Performance Computing (HPC), DB Oracle, MySQL, Access, PostgreSQL, Hypersonic, Unix, Linux, Windows, Windows Server, Apache, Arduino
- Data Mining Machine Learning, Artificial Neural Network, Graph Theory, Graph-based Algorithms, Petri Net, Pattern Matching, Pattern Recognition, Support Vector Machines, Clustering
- Bioinformatics Systems Biology (signaling, bayesian networks, ODEs), DNA-seq (Illumina, Roche and Sanger), RNA-seq, Hi-C/4C, Gene Expression and Gene Editing (CRISPR/Cas9)
- Tools Tableau, Visual Studio IDE, Eclipse IDE, Netbeans IDE, CMAKE Build System, ANT Build System, Git, SVN, Mercurial, GeoGebra, MATLAB, Mathematica, Maple, RStudio, BEAST, Microsoft Office, Adobe Creative Suite, AutoCAD, MPLAB IDE, LabView, GraphPad Prism, VNC, CygWin, GnuPg, Dia, Inkscape, ImageJ, GanttProject, EndNote, SnapGene, Integrative Genomics Viewer, FileMaker Pro

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## Research Publications

- 2017 Spinozzi, G.\*, Calabria, A.\*, Brasca, S., Beretta, S., Merelli, I., Milanese, L., Montini, E. - *VISPA2: Vector Integration Sites Parallel Analysis Tool Improved*. IN PREPARATION
- 2017 Calabria, A.\*, Beretta, S.\*, Merelli, I.\*, Spinozzi, G., Brasca, S., Pirola, Y., Benedicenti, F., Tenderini, E., Milanese, L., Montini, E. -  $\gamma$  - *TRIS: a new graph-algorithm for improved identification of viral insertion sites uncovers high levels of hematopoietic stem cell activity in gene therapy patients*. IN PREPARATION
- 2017 Spinozzi, G. - *Anti-Cancer Drug Resistance Causal Modeling from Lentiviral-Vector Integration Site Studies*, Biccocca Open Archive - <http://hdl.handle.net/10281/151647>
- 2016 Visigalli, I., Delai, S., Ferro, F., Cecere, F., Vezzoli, M., Sanvito, F., Benedicenti, F., Spinozzi, G., Calabria, A., Naldini, L., Montini, E., Cristofori, P., Biffi, A. - *Preclinical testing of the safety and tolerability of LV-mediated above normal alpha-L-iduronidase expression in murine and human hematopoietic cells using toxicology and biodistribution GLP studies*. Human Gene Therapy October 2016, 27(10): 813-829. doi:10.1089/hum.2016.068
- 2015 Calabria, A., Spinozzi, G., Benedicenti, F., Tenderini, E., Montini, E. - *adLIMS: a customized open source software that allows bridging clinical and basic molecular research studies*. BMC Bioinformatics 2015, 16(Suppl 9):S5 - doi:10.1186/1471-2105-16-S9-S5
- 2014 Calabria, A.\*, Leo, S.\*, Benedicenti, F., Cesana, D., Spinozzi, G., Orsini, M., Merella, S., Stupka, E., Zanetti, G., Montini, E. - *VISPA: a Computational pipeline for the identification and analysis of genomic vector integration sites*. Genome Medicine 2014, 6:67 - doi:10.1186/s13073-014-0067-5
- 2012 Spinozzi, G. - *Dynamic modeling and tools for the experimental evaluation of the behavior of EGFR-IGF1R via in the cell line H1650*, Tesionline
- 2010 Spinozzi, G. - *Design of a control system for a robot based on CAN bus*, Tesionline

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## Conference Proceedings

- 2017 Calabria, A., Spinozzi, G., Merelli, I., Beretta, S., Rancoita, P., Benedicenti, F., Brasca, S., Tenderini, E., Cesana, D., Di Serio, C., Milanese, L., Biffi, A., Naldini, L., Montini, E. - *Molecular Characterization of Hematopoietic System Reconstitution in 7 Metachromatic Leukodystrophy Patients Following Hematopoietic Stem Cell Gene Therapy*. American Society of Gene & Cell Therapy (ASGCT) 2017 - ORAL SESSION
- 2017 Cesana, D., Serina Secanechia, Y.N., Gallina, P., Calabria, A., Spinozzi, G., Rudilosso, L., Brasca, S., Montini, E. - *Studying Clonal Dynamics of Hematopoietic Reconstitution and Vector-Induced Oncogenesis in Mouse Models of Hematopoietic Stem Cell-Gene Therapy by Longitudinal Vector Integration Site Analyses*. American Society of Gene & Cell Therapy (ASGCT) 2017
- 2017 Volpin, M., Calabria, A., Spinozzi, G., Cesana, D., Tenderini, E., Gallina, P., Benedicenti, F., Lenz, J., Stamatoyannopoulos, G., Montini, E. - *Improving the Safety of Lentiviral Vector Integration with Chromatin Insulators*. American Society of Gene & Cell Therapy (ASGCT) 2017
- 2017 Volpin, M., Cittaro, D., Lim, M.C., Calabria, A., Spinozzi, G., Stamatoyannopoulos, G., Fullwood, M., Montini, E. - *Multidimensional Vector Interaction Capture to Study the Effects of SIN.LVs and Chromatin Insulators on the Cellular Genome*. American Society of Gene & Cell Therapy (ASGCT) 2017 - ORAL SESSION
- 2017 Spinozzi, G., Calabria, A., Brasca, S., Beretta, S., Merelli, I., Milanese, L., Montini, E. - *VISPA2: Faster and Extended Version of the Vector Integration Site Parallel Analysis Tool*. American Society of Gene & Cell Therapy (ASGCT) 2017
- 2017 Petrillo, C., Piras, F., Schioli, G., Unali, G., Calabria, A., Cuccovillo, I., Spinozzi, G., Benedicenti, F., Biffi, A., Cittaro, D., Montini, E., Genovese, P., Naldini, L., Kajaste-Rudnitski, A. - *Novel molecular and functional insight into cyclosporine-mediated enhancement of human hematopoietic stem cell gene therapy*. American Society of Gene & Cell Therapy (ASGCT) 2017 - ORAL SESSION

- 2016 Spinozzi, G., Calabria, A., Beretta, S., Brasca, S., Merelli, I., Milanese, L., Montini, E. - *VISPA2: Faster and Extended Version of Vector Integration Sites Parallel Analysis Tool*. European Society of Gene & Cell Therapy (ESGCT) 2016
- 2016 Spinozzi, G., Calabria, A., Brasca, S., Benedicenti, F., Tenderini, E., Montini, E. - *Unraveling Lentiviral Vector Integration Machinery through the Analysis of Integration Sites Landing in Repetitive Elements from Gene Therapy Patients*. European Society of Gene & Cell Therapy (ESGCT) 2016
- 2016 Spinozzi, G., Calabria, A., Caravagna, G., Graudenzi, A., Ramazzotti, D., Antoniotti, M., Mauri, G., Montini, E. - *Confirming and Investigating the Role of Breast Cancer PIK3CA-ERBB2 Genes in Anti-Cancer Drug-Resistance with a new Framework for the Inference of Cancer Progression Graphs using Vector Integration Sites Data*. Bioinformatics Italian Society, annual meeting 2016 - ORAL SESSION
- 2016 Calabria, A., Beretta, S., Merelli, I., Spinozzi, G., Brasca, S., Benedicenti, F., Tenderini, E., Pirola, Y., Milanese, L., Montini, E. - *New Graph-based Algorithm for Comprehensive Identification and Tracking of Retroviral Integration Sites*. 24th Annual International Conference on Intelligent Systems for Molecular Biology
- 2016 Spinozzi, G., Calabria, A., Brasca, S., Benedicenti, F., Tenderini, E., Montini, E. - *Unraveling Lentiviral Vector Integration Machinery through the Analysis of Integration Sites Landing in Repetitive Elements from Gene Therapy Patients*. 24th Annual International Conference on Intelligent Systems for Molecular Biology
- 2016 Spinozzi, G., Calabria, A., Brasca, S., Benedicenti, F., Tenderini, E., Montini, E. - *Repetitive Elements Analysis in Gene Therapy Patients*. OSR Scientific Retreat 2016
- 2016 Calabria, A., Beretta, S., Merelli, I., Spinozzi, G., Brasca, S., Benedicenti, F., Tenderini, E., Biffi, A., Montini, E. - *New Graph-based Algorithm for Comprehensive Identification and Tracking Retroviral Integration Sites*. American Society of Gene & Cell Therapy (ASGCT) 2016
- 2016 Pirazzoli, V., Spinozzi, G., Tenderini, E., Benedicenti, F., Calabria, A., Montini, E. - *Lentiviral insertional mutagenesis helps to uncover the mechanisms of resistance to AZD9291 and CO-1686 in EGFR-mutant lung cancer*. American Society of Gene & Cell Therapy (ASGCT) 2016
- 2016 Cesana, D., Gallina, P., Rudilosso, L., Calabria, A., Spinozzi, G., Merelli, I., Milanese, L., Montini, E. - *Lentiviral Vectors with a Reduced Splicing Interference Potential Have a Significantly Improved Safety Profile In Vivo*. American Society of Gene & Cell Therapy (ASGCT) 2016
- 2016 Biavasco, R., Pirazzoli, V., Spinozzi, G., Calabria, A., Tenderini, E., Benedicenti, F., Zanella, E., Bertotti, A., Trusolino, L., Montini, E. - *Insertional mutagenesis to identify mechanisms of cetuximab resistance in colorectal cancer*. American Society of Gene & Cell Therapy (ASGCT) 2016
- 2016 Volpin, M., Calabria, A., Cesana, D., Tenderini, E., Benedicenti, F., Spinozzi, G., Lenz, J., Stamatoyannopoulos, G., Montini, E. - *Identification and ranking of different chromatin insulators to block vector-driven enhancer-mediated insertional mutagenesis in vivo*. American Society of Gene & Cell Therapy (ASGCT) 2016
- 2015 Spinozzi, G., Calabria, A., Caravagna, G., Graudenzi, A., Ramazzotti, D., Antoniotti, M., Mauri, G., Montini, E. - *Investigating Drug-Resistance in Cancer with a new Mathematical Framework for the Inference of Cancer Progression Models and Vector Integration Sites Data*. 23rd Annual International Conference on Intelligent Systems for Molecular Biology and the 14th European Conference on Computational Biology
- 2015 Calabria, A., Spinozzi, G., Brasca, S., Beretta, S., Merelli, I., Benedicenti, F., Tenderini, E., Milanese, L., Montini, E. - *A New Bioinformatics Pipeline for Retroviral Integration Site Analysis in Hematopoietic Stem Cell Gene Therapy Applications*. Bioinformatics Italian Society, annual meeting 2015 - ORAL SESSION
- 2015 Spinozzi, G., Calabria, A., Caravagna, G., Graudenzi, A., Ramazzotti, D., Antoniotti, M., Mauri, G., Montini, E. - *A Novel Bioinformatics Framework for Studying Drug-Resistance Mechanisms with Cancer Progression using Vector Integration Sites Data*. Bioinformatics Italian Society, annual meeting 2015

- 2015 Spinozzi, G., Calabria, A., Caravagna, G., Graudenzi, A., Ramazzotti, D., Antoniotti, M., Mauri, G., Montini, E. - *Studying the Drug-Resistance Mechanisms with a new Mathematical Framework for Cancer Progression using Vector Integration Sites Data*. OSR Scientific Retreat 2015
- 2015 Cesana, D., Calabria, A., Gallina, P., Rudilosso, L., Spinozzi, G., Montini, E. - *Development of New Lentiviral Vectors with a Reduced Splicing Interference Potential and a Safer in Vivo Genotoxic Profile*. American Society of Gene & Cell Therapy (ASGCT) 2015
- 2015 Pirazzoli, V., Biavasco, R., Spinozzi, G., Bertotti, A., Trusolino, L., Montini, E. - *Uncovers Mechanisms of Resistance to Cetuximab by Insertional Mutagenesis in Heterotopically-Engrafted Human Colorectal Cancers*. American Society of Gene & Cell Therapy (ASGCT) 2015 - ORAL SESSION
- 2015 Calabria, A., Brasca, S., Spinozzi, G., Benedicenti, F., Tenderini, E., Montini, E. - *Increasing accuracy and precision of integration site identification of aligned sequencing reads with a new bioinformatics framework*. American Society of Gene & Cell Therapy (ASGCT) 2015
- 2014 Calabria, A., Brasca, S., Spinozzi, G., Benedicenti, F., Tenderini, E., Neduva, V., Govani, F., Dow, D., Montini, E. - *A new bioinformatics tool to improve precision and quality of vector integration site identification after genomic alignment*. European Society of Gene & Cell Therapy (ESGCT) 2014 - ORAL SESSION
- 2014 Calabria, A., Brasca, S., Spinozzi, G., Benedicenti, F., Tenderini, E., Montini, E. - *Density-based methods improve vector integration site identification quality*. 11th international meeting on Computational Intelligence methods for Bioinformatics and Biostatistics (CIBB) 2014 - ORAL SESSION
- 2014 Calabria, A., Benedicenti, F., Brasca, S., Spinozzi, G., Tenderini, E., Neduva, V., Dow, D., Montini, E. - *Novel bioinformatic framework for quantification of retroviral integration sites from genomic DNA sonication-based PCR data*. American Society of Gene & Cell Therapy (ASGCT) 2014
- 2014 Calabria, A., Spinozzi, G., Benedicenti, F., Tenderini, E., Biasco, L., Montini, E. - *adLIMS: a customized open source software that allows bridging clinical and basic molecular research studies*. Bioinformatics Italian Society, annual meeting 2014
- 2014 Calabria, A., Brasca, S., Spinozzi, G., Stupka, E., Naldini, L., Montini, E. - *Vector Integration Site Identification through Density-based methods*. Bioinformatics Italian Society, annual meeting 2014 - ORAL SESSION
- 2013 Spinozzi, G., Calabria, A., Benedicenti, F., Tenderini, E., Brasca, S., Naldini, L., Montini, E. - *adLIMS: a new open source software allows bridging clinical and basic molecular research studies*. OSR Scientific Retreat 2013
- 2013 Calabria, A., Brasca, S., Spinozzi, G., Benedicenti, F., Biasco, L., Stupka, E., Naldini, L., Montini, E. - *Bioinformatic Framework for Vector Integration Sites Analysis and Clonal Abundance Estimation*. European Society of Gene and Cell Therapy (ESGCT) 2013
- 2013 Benedicenti, F., Calabria, A., Spinozzi, G., Brasca, S., Lazarevic, D., Tenderini, E., Govani, F., Stupka, E., Naldini, L., Doe, D., Montini, E. - *A quantitative method for vector integration site retrieval based on genomic DNA sonication and Illumina next generation sequencing*. European Society of Gene and Cell Therapy (ESGCT) 2013

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## Other Interests

Listening Music  
 Italian Comedy Movies  
 Collecting rare old Italian stamps  
 Collecting Mechanical Watches  
 Reading  
 Collecting Antiques  
 Art

Technology and Computers

## Languages

		<b>Comprehension</b>		<b>Speaking</b>		<b>Writing</b>
		Listening	Reading	Interaction	Production	
<b>Italian</b>	Mother Tongue	<i>C2</i>	<i>C2</i>	<i>C2</i>	<i>C2</i>	<i>C2</i>
<b>English*</b>	Advanced Level	<i>C1</i>	<i>C1</i>	<i>C1</i>	<i>C1</i>	<i>C1</i>

\*PhD English Course for the doctoral program has certified a European level CEFR.

I authorize the use of my personal data in compliance with D.lgs 196/03.

Milan (Italy), June 26, 2017