

Prof.Dr. Mehmet Şahin

Kişisel Bilgiler

Fax Telefonu: [+90 902 122 8531](tel:+909021228531)

E-posta: msahin@itu.edu.tr

Web: <http://web.itu.edu.tr/~msahin/>

Posta Adresi: Astronautical Engineering Department, Faculty of Aeronautics and Astronautics, Istanbul Technical University, 34469, Maslak/İstanbul, TURKEY

Uluslararası Araştırmacı ID'leri

ORCID: 0000-0001-6502-2209

ScopusID: 55074093400

Yoksis Araştırmacı ID: 151913

Eğitim Bilgileri

Doktora, Ecole Polytechnique Federale De Lausanne, Makina Mühendisliği, İsviçre 2001 - 2004

Yüksek Lisans, Georgia Institute of Technology, Uzay Mühendisliği, Amerika Birleşik Devletleri 1999 - 2000

Lisans, İstanbul Teknik Üniversitesi, Uçak Ve Uzay Bilimleri Fakültesi, Uçak Mühendisliği Bölümü, Türkiye 1990 - 1995

Lisans Çift Anadal, İstanbul Teknik Üniversitesi, Fen-Edebiyat Fakültesi, Fizik Mühendisliği Bölümü, Türkiye 1990 - 1995

Yabancı Diller

İngilizce, C1 İleri

Japonca, B1 Orta

Fransızca, B1 Orta

Yaptığı Tezler

Doktora, A numerical investigation using a novel finite volume method of some flow instabilities, Ecole Polytechnique Fédérale De Lausanne, Epfl (The Federal Institute Of Technology, Lausanne), Makina , Lmf-Ise-Fst, 2004

Araştırma Alanları

Bilgisayar Bilimleri, Algoritmalar, Paralel Algoritmalar, Yazılım, Makina Mühendisliği, Enerji, Akışkanlar Mekaniği, Havacılık ve Uzay Mühendisliği, Uzay Mühendisliği, Yazılım, Sayısal modelleme, Mühendislik ve Teknoloji

Akademik Unvanlar / Görevler

Doç.Dr., İstanbul Teknik Üniversitesi, Uçak Ve Uzay Bilimleri Fakültesi, Uzay Mühendisliği Bölümü, 2011 - Devam Ediyor
Yrd.Doç.Dr., İstanbul Teknik Üniversitesi, Uçak Ve Uzay Bilimleri Fakültesi, 2009 - 2011

SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayınlanan Makaleler

- I. **A mass conserving arbitrary Lagrangian-Eulerian formulation for three-dimensional multiphase fluid flows**
Güventürk C., Şahin M.
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN FLUIDS, cilt.94, sa.4, ss.346-376, 2022 (SCI-Expanded)
- II. **Propulsive performance of plunging airfoils in biplane configuration**
Yucel S. B., Sahin M., Unal M. F.
PHYSICS OF FLUIDS, cilt.34, sa.3, 2022 (SCI-Expanded)
- III. **Experimental and numerical investigation of co-axial rotor interaction to thrust**
Soydan A., Sahin H., Bicer B., Sanozkan S., Şahin M.
PROGRESS IN COMPUTATIONAL FLUID DYNAMICS, cilt.22, sa.5, ss.317-330, 2022 (SCI-Expanded)
- IV. **An efficient edge based data structure for the compressible Reynolds-averaged Navier-Stokes equations on hybrid unstructured meshes**
Akkurt S., Şahin M.
International Journal for Numerical Methods in Fluids, cilt.94, sa.1, ss.13-31, 2022 (SCI-Expanded)
- V. **A face-based monolithic approach for the incompressible magnetohydrodynamics equations**
Ata K., Şahin M.
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN FLUIDS, cilt.92, sa.5, ss.347-371, 2020 (SCI-Expanded)
- VI. **The numerical investigation of Lagrangian and Eulerian coherent structures for the near wake structure of a hovering Drosophila**
Dilek E., ERZİNCANLI B., Şahin M.
THEORETICAL AND COMPUTATIONAL FLUID DYNAMICS, cilt.33, ss.255-279, 2019 (SCI-Expanded)
- VII. **A monolithic fluid-structure interaction framework applied to red blood cells**
Cetin A., Şahin M.
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN BIOMEDICAL ENGINEERING, cilt.35, sa.2, 2019 (SCI-Expanded)
- VIII. **An integral equation approach for the solution of the Stokes flow with Hermite surfaces**
Ata K., Şahin M.
ENGINEERING ANALYSIS WITH BOUNDARY ELEMENTS, cilt.96, ss.14-22, 2018 (SCI-Expanded)
- IX. **An arbitrary Lagrangian-Eulerian framework with exact mass conservation for the numerical simulation of 2D rising bubble problem**
Güventürk C., Şahin M.
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING, cilt.112, sa.13, ss.2110-2134, 2017 (SCI-Expanded)
- X. **A parallel monolithic approach for fluid-structure interaction in a cerebral aneurysm**
EKEN A., Şahin M.
Computers and Fluids, cilt.153, ss.61-75, 2017 (SCI-Expanded)
- XI. **A parallel adaptive viscoelastic flow solver with template based dynamic mesh refinement**
Oner E., Sahin M.
JOURNAL OF NON-NEWTONIAN FLUID MECHANICS, cilt.234, ss.36-50, 2016 (SCI-Expanded)
- XII. **A parallel monolithic algorithm for the numerical simulation of large-scale fluid structure interaction problems**
Eken A., Sahin M.
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN FLUIDS, cilt.80, sa.12, ss.687-714, 2016 (SCI-Expanded)
- XIII. **Strong transient effects of the flow around a harmonically plunging NACA0012 airfoil at low Reynolds numbers**
Yucel S. B., Sahin M., Unal M. F.
THEORETICAL AND COMPUTATIONAL FLUID DYNAMICS, cilt.29, ss.391-412, 2015 (SCI-Expanded)
- XIV. **The numerical simulation of the wing kinematics effects on near wake topology and aerodynamic performance in hovering Drosophila flight**
Erzincanli B., Sahin M.

- COMPUTERS & FLUIDS, cilt.122, ss.90-110, 2015 (SCI-Expanded)
- XV. An arbitrary Lagrangian-Eulerian formulation for solving moving boundary problems with large displacements and rotations
Erzincanli B., Sahin M.
JOURNAL OF COMPUTATIONAL PHYSICS, cilt.255, ss.660-679, 2013 (SCI-Expanded)
- XVI. Parallel large-scale numerical simulations of purely-elastic instabilities behind a confined circular cylinder in a rectangular channel
Sahin M.
JOURNAL OF NON-NEWTONIAN FLUID MECHANICS, cilt.195, ss.46-56, 2013 (SCI-Expanded)
- XVII. A stable unstructured finite volume method for parallel large-scale viscoelastic fluid flow calculations
Sahin M.
JOURNAL OF NON-NEWTONIAN FLUID MECHANICS, cilt.166, ss.779-791, 2011 (SCI-Expanded)
- XVIII. The numerical comparison of flow patterns and propulsive performances for the hydromedusae *Sarsia tubulosa* and *Aequorea victoria*
Sahin M., MOHSENI K., Colin S. P.
JOURNAL OF EXPERIMENTAL BIOLOGY, cilt.212, sa.16, ss.2656-2667, 2009 (SCI-Expanded)
- XIX. An arbitrary Lagrangian-Eulerian formulation for the numerical simulation of flow patterns generated by the hydromedusa *Aequorea victoria*
Sahin M., MOHSENI K.
JOURNAL OF COMPUTATIONAL PHYSICS, cilt.228, sa.12, ss.4588-4605, 2009 (SCI-Expanded)
- XX. A parallel adaptive unstructured finite volume method for linear stability (normal mode) analysis of viscoelastic fluid flows
Sahin M., Wilson H. J.
JOURNAL OF NON-NEWTONIAN FLUID MECHANICS, cilt.155, ss.1-14, 2008 (SCI-Expanded)
- XXI. Molecular physics of a polymer engineering instability: Experiments and computation
Hassell D. G., Mackley M. R., Sahin M., Wilson H. J., Harlen O. G., McLeish T. C. B.
PHYSICAL REVIEW E, cilt.77, sa.5, 2008 (SCI-Expanded)
- XXII. A semi-staggered dilation-free finite volume method for the numerical solution of viscoelastic fluid flows on all-hexahedral elements
Sahin M., WILSON H. J.
JOURNAL OF NON-NEWTONIAN FLUID MECHANICS, cilt.147, ss.79-91, 2007 (SCI-Expanded)
- XXIII. A preconditioned semi-staggered dilation-free finite volume method for the incompressible Navier-Stokes equations on all-hexahedral elements
Sahin M.
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN FLUIDS, cilt.49, sa.9, ss.959-974, 2005 (SCI-Expanded)
- XXIV. On the effects of viscoelasticity on two-dimensional vortex dynamics in the cylinder wake
Sahin M., OWENS R.
JOURNAL OF NON-NEWTONIAN FLUID MECHANICS, cilt.123, ss.121-139, 2004 (SCI-Expanded)
- XXV. A numerical investigation of wall effects up to high blockage ratios on two-dimensional flow past a confined circular cylinder
Sahin M., OWENS R.
PHYSICS OF FLUIDS, cilt.16, sa.5, ss.1305-1320, 2004 (SCI-Expanded)
- XXVI. A novel fully implicit finite volume method applied to the lid-driven cavity problem - Part I: High Reynolds number flow calculations
Sahin M., OWENS R.
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN FLUIDS, cilt.42, sa.1, ss.57-77, 2003 (SCI-Expanded)
- XXVII. A novel fully-implicit finite volume method applied to the lid-driven cavity problem. Part II. Linear stability analysis
Sahin M., OWENS R.
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN FLUIDS, cilt.42, sa.1, ss.79-88, 2003 (SCI-Expanded)

- XXVIII. **Solution of the incompressible unsteady Navier-Stokes equations only in terms of the velocity components**
 Sahin M.
 INTERNATIONAL JOURNAL OF COMPUTATIONAL FLUID DYNAMICS, cilt.17, sa.3, ss.199-203, 2003 (SCI-Expanded)
- XXIX. **Dynamic stall alleviation using a deformable leading edge concept - A numerical study**
 Sahin M., SANKAR L., CHANDRASEKHARA M., TUNG C.
 JOURNAL OF AIRCRAFT, cilt.40, sa.1, ss.77-85, 2003 (SCI-Expanded)
- XXX. **A fast higher-order integral equation method for solution of the full potential equation around airfoils**
 Sahin M., KAMEMOTO K.
 ENGINEERING ANALYSIS WITH BOUNDARY ELEMENTS, cilt.24, sa.5, ss.441-445, 2000 (SCI-Expanded)

Hakemli Kongre / Sempozyum Bildiri Kitaplarında Yer Alan Yayınlar

- I. **An Application of Anisotropic Mesh Refinement to Solve Flow around the S-76 Main Rotor with Swept-Tapered Tip**
 Aksoy E., Şahin M.
 AIAA Science and Technology Forum and Exposition, AIAA SciTech Forum 2022, California, Amerika Birleşik Devletleri, 3 - 07 Ocak 2022
- II. **HEMLAB Algorithm Applied to 4th AIAA CFD High Lift Prediction Workshop**
 Sukas H., Şahin M.
 AIAA AVIATION 2022 Forum, Illinois, Amerika Birleşik Devletleri, 27 Haziran - 01 Temmuz 2022
- III. **Hemlab algorithm applied to the high-lift jaxa standard model**
 Sukas H., Şahin M.
 AIAA Science and Technology Forum and Exposition, AIAA SciTech Forum 2021, Virtual, Online, 11 - 15 Ocak 2021, ss.1-17
- IV. **An efficient edge based data structure for a vertex based finite volume algorithm on hybrid unstructured meshes**
 AKKURT S., ŞAHİN M.
 10th International Aerospace Conference, 18 Ekim 2020 - 20 Ekim 2019
- V. **An edge based finite volume approach for the solution of the incompressible Navier-Stokes equations on unstructured triangular meshes**
 Furkan O., ŞAHİN M.
 10th International Aerospace Conference, Ankara, Türkiye, 18 - 20 Ekim 2019
- VI. **A block based preconditioner for fluid-structure interaction problems**
 CETIN A., ŞAHİN M.
 31st International Conference on Parallel Computational Fluid Dynamics, 14 - 17 Mayıs 2019
- VII. **A parallel monolithic approach for the incompressible magnetohydrodynamics equations**
 ATA R. K., ŞAHİN M.
 31st International Conference on Parallel Computational Fluid Dynamics, 14 - 17 Mayıs 2019
- VIII. **A fully implicit ALE formulation including surface tension for multiphase flows**
 Guventurk C., ŞAHİN M.
 31st International Conference on Parallel Computational Fluid Dynamics, 14 - 17 Mayıs 2019
- IX. **AKIŞKAN-YAPI ETKILEŞİMİ PROBLEMLERİNİN SAYISAL SİMULASYONU İÇİN PARALEL MONOLİTİK BİR YÖNTEM**
 EKEN A., ŞAHİN M.
 VII. ULUSAL HAVACILIK VE UZAY KONFERANSI, Türkiye, 12 - 14 Eylül 2018
- X. **A monolithic approach for the solution of the incompressible magnetohydrodynamics equations in two- and three-dimensions.**
 ATA R. K., ŞAHİN M.

- 10th International Conference on Computational Fluid Dynamics, 9 - 13 Temmuz 2018
- XI. **An arbitrary Lagrangian Eulerian formulation with exact mass conservation for the numerical simulation of a rising bubble in a viscoelastic fluid**
Güventurk C., ŞAHİN M.
10th International Conference on Computational Fluid Dynamics, 9 - 13 Temmuz 2018
- XII. **monolithic fluid-structure algorithm applied to buckling of red blood cell membrane**
CETIN A., ŞAHİN M.
10th International Conference on Computational Fluid Dynamics, 9 - 13 Temmuz 2018
- XIII. **A monolithic fluid-structure algorithm applied to buckling of red blood cell membrane**
Çetin A. T., Şahin M.
10th International Conference on Computational Fluid Dynamics, ICCFD 2018, Barcelona, İspanya, 9 - 13 Temmuz 2018
- XIV. **An efficient data structure for three-dimensional vertex based finite volume method**
AKKURT S., ŞAHİN M.
APS 70th Annual Meeting Division of Fluid Dynamics, 19 - 21 Kasım 2017
- XV. **A fluid structure algorithm with Lagrange multipliers to model free swimming**
DILEK E., ŞAHİN M.
APS 70th Annual Meeting Division of Fluid Dynamics, 19 - 21 Kasım 2017
- XVI. **An arbitrary Lagrangian Eulerian (ALE) framework with exact mass conservation for multiphase flow problems**
GUVENTURK C., ŞAHİN M.
9th Ankara International Aerospace Conference, 20 - 22 Eylül 2017
- XVII. **A MONOLITHIC APPROACH FOR THE INCOMPRESSIBLE MAGNETOHYDRODYNAMICS EQUATIONS**
Ata K., Şahin M.
7th International Conference on Coupled Problems in Science and Engineering (COUPLED PROBLEMS),
Yunanistan, 12 - 14 Haziran 2017, ss.491-501
- XVIII. **An efficient edge based data structure implementation for a vertex based finite volume method**
Akkurt S., Şahin M.
23rd AIAA Computational Fluid Dynamics Conference, Denver, Co, Amerika Birleşik Devletleri, 5 - 09 Haziran 2017,
cilt.2017, sa.3292, ss.1-11
- XIX. **The Numerical Simulation Of The Wing Kinematic Effects On Near Wake Structure In Hovering Drosophila Flight**
ERZİNCANLI B., DILEK E., ŞAHİN M.
The Engineering Mechanics Institute Conference (EMI 2017), 5 - 07 Haziran 2017
- XX. **A monolithic fluid structure interaction algorithm applied to red blood cells in a capillary**
CETIN A., ŞAHİN M.
47th AIAA Fluid Dynamics Conference and Exhibit, Denver, 5 - 09 Haziran 2017
- XXI. **An efficient edge based data structure implementation for a vertex based finite volume formulation**
AKKURT S., ŞAHİN M.
47th AIAA Fluid Dynamics Conference and Exhibit, Denver, 5 - 09 Haziran 2017
- XXII. **A numerical investigation of two different Drosophila forward flight modes**
Dilek E., Erzincanli B., ŞAHİN M.
APS 69th Annual Meeting Division of Fluid Dynamics, Portland, A.B.D. VİRJİN ADALARI, 20 - 22 Ekim 2016
- XXIII. **An arbitrary Lagrangian Eulerian ALE framework for the numerical simulation of multiphase flow problems**
Güventürk C., ŞAHİN M.
The 7th International Conference on Computational Methods, 1 - 04 Ağustos 2016
- XXIV. **An Implicit Meshless RBF-based Differential Quadrature Method Applied to the Lid-Driven Cavity Problem**
Yeğiner Y., Şahin M., Altunkaynak A.
ICCFD9, İstanbul, Türkiye, 11 - 15 Temmuz 2016, ss.1-5

- XXV. **An arbitrary Lagrangian Eulerian ALE approach for moving boundary problems with large displacements and rotations**
ŞAHİN M.
9th International Conference on Computational Fluid Dynamics, 11 - 15 Temmuz 2016
- XXVI. **An Implicit Meshless RBF based Dierential Quadrature Method Applied to the Lid Driven Cavity Problem**
YEĞİNER Y., ŞAHİN M., ALTINKAYNAK A.
Ninth International Conference on Computational Fluid Dynamics (ICCFD9), İstanbul, Türkiye, 11 - 15 Temmuz 2016
- XXVII. **An integrated simulation of a wing body combination for Drosophila flight**
Dilek E., Erzincanli B., ŞAHİN M.
European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2016), 5 - 08 Haziran 2016
- XXVIII. **The direct numerical simulation of the deflected wake phenomenon around a plunging NACA0012 airfoil at low Reynolds numbers**
ŞAHİN M., Banu Y., Unal F.
APS 68th AnnualMeeting Division of Fluid Dynamics, 22 - 24 Kasım 2015
- XXIX. **AN INTEGRATED SIMULATION OF A WING BODY COMBINATION FOR A HOVERING DROSOPHILA**
EZGI D., BELKIS E., ŞAHİN M.
68th Annual Meeting of the APS Division of Fluid Dynamics, 22 - 24 Kasım 2015
- XXX. **Heat And Mass Transfer Characteristics of a Micro Serpentine Channel with a Viscoelastic Coolant**
Ozan O., ÇELİK B., ŞAHİN M.
8th International Conference on computaional heat and mass transfer, 25 - 28 Mayıs 2015
- XXXI. **The numerical simulation of the wing kinematics effects on aerodynamic performance in hovering Drosophila flight**
Erzincanli B., ŞAHİN M.
The European Numerical Mathematics and AdvancedApplications (ENUMATH) Conference, 14 - 18 Eylül 2015
- XXXII. **The direct numerical simulation of the near wake structurearound a hovering Drosophila flight**
Dilek E., Belkis E., ŞAHİN M.
8th Ankara International Aerospace Conference, 10 - 12 Eylül 2015
- XXXIII. **Large scale viscous flow solutions over deforming bodies**
ŞAHİN M.
8th Ankara International Aerospace Conference, 10 - 12 Eylül 2015
- XXXIV. **Heat and mass transfer characteristic of a serpentine channel with a viscoelastic coolant**
Ozan O., Bayram C., ŞAHİN M.
8th International Conference on Computational Heat and Mass Transfer, 25 - 28 Mayıs 2015
- XXXV. **Heat and Mass Transfer Characteristics of a Micro Serpentine Channel with a Viscoelestic Coolant**
Oduncu O., Çelik B., Şahin M.
8th International conference on computational heat and mass transfer, İstanbul, Türkiye, 25 - 28 Mayıs 2015, ss.122-127
- XXXVI. **A parallel fully-coupled fluid-structure interaction simulation of a cerebral aneurysm**
EKEN A., Şahin M.
6th International Conference on Computational Methods for Coupled Problems in Science and Engineering, COUPLED PROBLEMS 2015, Venice, İtalya, 18 - 20 Mayıs 2015, ss.116-124
- XXXVII. **A monolithic approach for the numerical simulation of fluid structure interactrion problems**
Eken A., Şahin M.
43rd AIAA Fluid Dynamics Conference, San Diego, CA, Amerika Birleşik Devletleri, 24 - 27 Haziran 2013
- XXXVIII. **A parallel fully coupled approach for large-scale fluid-structure interaction problems**
EKEN A., Şahin M.
3rd South-East European Conference on Computational Mechanics, SEECCM 2013, Kos Island, Yunanistan, 12 - 14 Haziran 2013, ss.94-116

- XXXIX. **An arbitrary Lagrangian-Eulerian approach for the numerical simulation of Drosophila flight**
 ERZINCANLI B., Şahin M.
 6th European Congress on Computational Methods in Applied Sciences and Engineering, ECCOMAS 2012, Vienna,
 Avusturya, 10 - 14 Eylül 2012, ss.3906-3925
- XL. **A stable unstructured finite volume method with arbitrary Lagrangian-Eulerian formulation for the numerical simulation of insect flight**
 ERZINCANLI B., Şahin M.
 41st AIAA Fluid Dynamics Conference and Exhibit 2011, Honolulu, HI, Amerika Birleşik Devletleri, 27 - 30 Haziran
 2011
- XLI. **The numerical simulation of flow patterns generated by the hydromedusa Aequorea victoria using an arbitrary Lagrangian-Eulerian formulation**
 Sahin M., MOHSENI K.
 38th AIAA Fluid Dynamics Conference and Exhibit, Seattle, WA, Amerika Birleşik Devletleri, 23 - 26 Haziran 2008

Desteklenen Projeler

Şahin M., Akkurt S., Yükseköğretim Kurumları Destekli Proje, Verimli Bir Kenar Merkezli Data Yapısı Kullanılarak Akış Çözucusu Geliştirilmesi, 2017 - 2018

Şahin M., Yükseköğretim Kurumları Destekli Proje, A Numerical Investigation of Two-Different Drosophila Forward Flight Modes, 2016 - 2018

Şahin M., Yükseköğretim Kurumları Destekli Proje, An Arbitrary Lagrangian Eulerian (ALE) Framework for the Numerical Simulation of Multiphase Flow Problems, 2016 - 2018

Şahin M., Yükseköğretim Kurumları Destekli Proje, DÜŞÜK REYNOLS SAYILARINDA SALINIM HAREKETİ YAPAN NACA0012 KANAT PROFİLİ ETRAFINDAKİ SİMETRİK OLMAYAN GİRDAP YAPILARININ SAYISAL DİREK SİMÜLASYONU, 2015 - 2018

Şahin M., Yükseköğretim Kurumları Destekli Proje, A Parallel Monolithic Approach for Fluid-Structure Interaction in a Cerebral Aneurysm, 2014 - 2018

Şahin M., Yükseköğretim Kurumları Destekli Proje, Tam Bağlaşıklı Olarak akışkan-Yapı Etkileşimi Problemlerinin Sayısal Olarak Modellenmesi, 2013 - 2018

Şahin M., Yükseköğretim Kurumları Destekli Proje, Paralel Büyük Ölçekli viskoelastik Akışkan Karasızlıklarının Simülasyonu, 2012 - 2018

Şahin M., Yükseköğretim Kurumları Destekli Proje, A STABLE UNSTRUCTURED FINITE VOLUME METHOD WITH MULTIGRID FOR PARALLEL LARGE SCALE INCOMPRESSIBLE VISCOSOUS FLUID FLOW COMPUTATIONS, 2010 - 2018

Şahin M., Yükseköğretim Kurumları Destekli Proje, PARALLEL LARGE-SCALE COMPUTATION OF AN OLDROYD-B FLUID PAST A CANFIED CIRCULAR CYLINDER IN A RECTANGULAR CHANNEL USING AN UNSTRUCTURED FINITE VOLUME METHOD, 2010 - 2018

Metrikler

Yayın: 73

Atıf (WoS): 547

Atıf (Scopus): 805

H-İndeks (WoS): 12

H-İndeks (Scopus): 12

Akademî Dışı Deneyim

University of Colorado at Boulder

University College London
Swiss Federal Institute of Technology at Lausanne
Georgia Institute of Technology